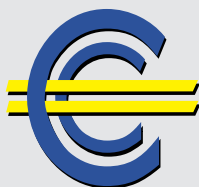


# Second ECB Central Banking Conference



## The transformation of the European financial system

Editors:

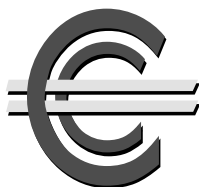
Vítor Gaspar  
Philipp Hartmann  
Olaf Sleijpen



EUROPEAN CENTRAL BANK

Second ECB Central Banking Conference

October 2002, Frankfurt, Germany



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Vitor Gaspar

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EUROPEAN CENTRAL BANK

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## Foreword

The second ECB Central Banking Conference on the Transformation of the European Financial System took place on 24 and 25 October 2002 in Frankfurt am Main.

The ECB Central Banking Conferences are biennial events, bringing together high-level representatives from central banks and international and European institutions, as well as academics, members of the financial press and, at this conference, financial market participants.

The conferences serve a number of purposes. First, they enable participants to exchange information on current central banking issues. Second, they provide a forum for interaction and debate between academics and policy-makers: unlike purely research-oriented conferences, the ECB Central Banking Conferences also aim to bridge gaps between research and policy. Finally, the conferences help to give an insight into the ECB's policy and functioning and to enhance its openness and transparency.

The first ECB Central Banking Conference took place in November 2000. It focused on price stability, which is the primary objective of many central banks, not least the ECB. Sufficient time has passed since then for us to assess our relationship with the academic world. I believe that we have made an effective contribution, thinking particularly of our successful Research Visitors Programme. Indeed, this programme has resulted in many publications – in particular as part of the ECB's Working Paper Series – which are often co-authored by ECB staff members. Other examples of successful co-operation between the academic world and the ECB are our conference series and research networks. Of these, the ECB-CFS research network on "Capital markets and financial integration in Europe" is of particular relevance to the theme of the second ECB Central Banking Conference.

So why did we choose this topic for our second ECB Central Banking Conference? The start of Economic and Monetary Union, more than four years ago, and the introduction of euro banknotes and coins in January 2002 were real milestones. In terms of the Maastricht Treaty, these achievements complete the process of monetary integration. But we should not regard Monetary Union as an end in itself. The introduction of the euro has had – and will continue to have – a powerful influence on European financial market developments and integration. The implications of these developments are manifold and profound, in particular for central bankers, but also for other policy-makers.

This book introduces the topic of the second ECB Central Banking Conference and contains the papers given, summaries of discussions, the closing remarks by Lucas Papademos, Vice-President of the ECB, and the dinner speech by Otmar Issing, Member of the Executive Board of the ECB.

I hope that the book will make a useful contribution to the academic literature on European financial market developments and integration. Moreover, I hope that it will help to disseminate the views expressed during the conference to interested readers, in particular those who were unable to attend the conference in person.

Encouraged by the success of the first two conferences, we are already organising a third ECB Central Banking Conference, which will take place in 2004. We are confident that it will again generate great interest.

Willem F. Duisenberg  
President of the European Central Bank



# 1

## Introduction

Vítor Gaspar, Philipp Hartmann and Olaf Sleijpen

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The European financial landscape has changed dramatically over the last couple of years and the pace of change appears to have moved into a higher gear with the establishment of Economic and Monetary Union (EMU). However, although EMU and the introduction of the euro have played a pivotal role in the changes the European financial system has been undergoing, a host of other factors can be identified that in parallel with the euro contributed to the transformation of the European financial system.

First, progressive steps in the process of European economic integration have laid the foundations for financial market integration and a surge in cross-border trading, in particular in money markets, wholesale banking and bond markets. The process of European financial integration was initially given impetus by the Single European Act (SEA), which came into force in 1987 and provided the basis for the establishment of an internal market for goods, persons, services and capital. In parallel the Member States embarked upon a process of capital liberalisation. The first stage of EMU began on 1 July 1990 with the liberalisation of capital movements (see European Council, 1988).<sup>1</sup> More recently, European policy makers have agreed upon an even more ambitious agenda of measures, the so-called Financial Services Action Plan (FSAP; see EU Commission, 1999). Building on the achievements of the internal market, the FSAP puts forward 43 legislative measures to achieve three objectives: 1) a single EU market for wholesale financial services, 2) open and secure retail markets and 3) state-of-the-art prudential rules and supervision. The implementation of these measures by 2005 should create a truly integrated market for financial services in the European Union. All these initiatives were inspired by economic theory, supported by empirical evidence, claiming that the integration and development of financial markets is very likely to contribute to economic growth by increasing the efficiency of the allocation of capital (see e.g. Pagano, 1993; Levine, 1997; Giannetti et al., 2002; and London Economics, 2002). In this context, the European monetary integration process in general, and the introduction of a single currency in particular, albeit very important, were from an economic point of view merely one of the many steps in this process of gradual financial integration in Europe. They also acted as a catalyst to further financial market initiatives contributing to integration.

In addition, the European financial system has witnessed a number of remarkable structural changes, that partially can be considered as related to or triggered by the European financial integration process, but to some extent are also exogenous or part of global developments. A good example of the latter are changes that were made possible because of the pace of technological development, which has, globally, probably been the most important factor affecting developments in financial markets over the past decades. Examples of endogenous changes are: national mergers and acquisitions in banking; the increasingly blurring distinction between traditional financial products and financial institutions and, in line with this development, the establishment of financial conglomerates, at least in a number of Member States; a gradual convergence of legal and regulatory practices, although differences in this area still seem to prevail (e.g. different tax regimes, as outlined by Jean Dermine in his conference paper; see Chapter 2 of this volume), despite the recent initiatives in the area of regulation of securities markets (the so-called “Lamfalussy” process; see Committee of Wise Men, 2001); and the recently contemplated changes regarding the co-ordination of (national) supervisory practices at the (European) level, following the gradual increase in European financial integration.

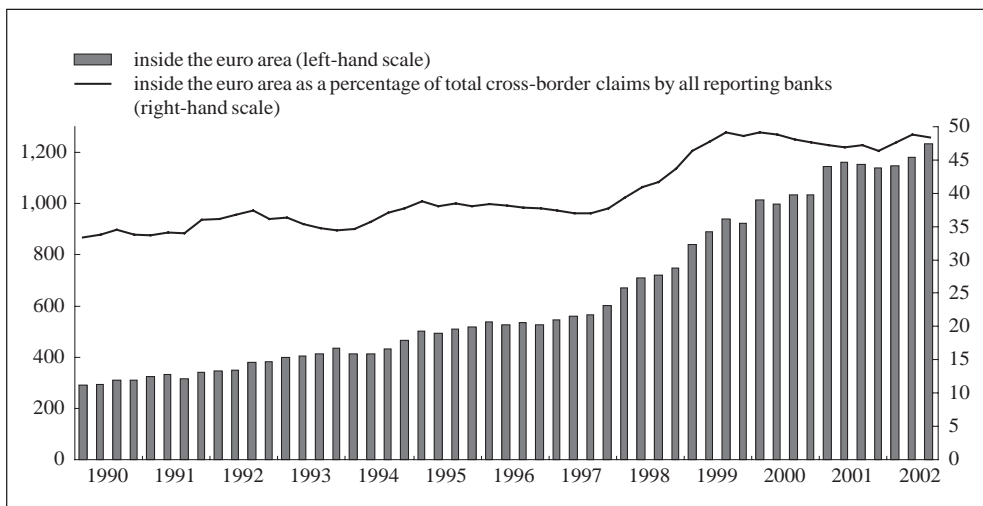
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<sup>1</sup> A few Member States were allowed to temporarily maintain some restrictions on capital flows, but all those had been lifted by May 1994.

Some changes, however, are more directly related to the introduction of the euro. First and foremost, the single currency brought about the well-known convergence process in short- and long-term interest rates across the euro area. Cross-country interest rate differentials basically disappeared for the money market and became very small for government bond markets (see e.g. Figures 1 and 2 in the conference paper by Adjaouté and Danthine, reproduced in Chapter 5). Almost by definition a single currency has its strongest effect on the integration of the money market. Apart from the convergence of short-term rates, this can be expected to be reflected in increasing cross-border interbank market activity, as particularly large banks will have greater incentives for cross-border arbitrage and will try to benefit from the greater pool of liquidity offered in the monetary union. (This is also facilitated by the cross-country large-value payments systems that accompany a single monetary policy, such as in the case of the euro area the Eurosystem's TARGET real-time gross settlement system and the Euro Banking Associations's Euro 1 net settlement system.) Figure 1 illustrates well that the euro seems to have had this effect on member countries' banks. Starting in 1998, the relative share of euro area banks' cross-border claims grew by more than one third before stabilising at a new level. This means that euro area cross-border interbank claims now constitute almost half of the global total of interbank claims reported by the Bank for International Settlements (see also Galati and Tsatsaronis, 2001, and ECB, 2001a, 2002b).

A second issue, the impact of the euro on the primary corporate bond market in the euro area, is now debated more controversially. Figure 2 shows the "boom" in (net) issuance activity that occurred contemporaneously to the introduction of the euro. However, contrary to interbank claims total corporate bond issuance has come down again recently, including the component originating from non-financial corporations. The paper by Bruce Carnegie-

Figure 1: Euro area cross-border interbank lending, 1990-2002  
(amounts outstanding at end-of-quarter, in EUR billions and % of total)

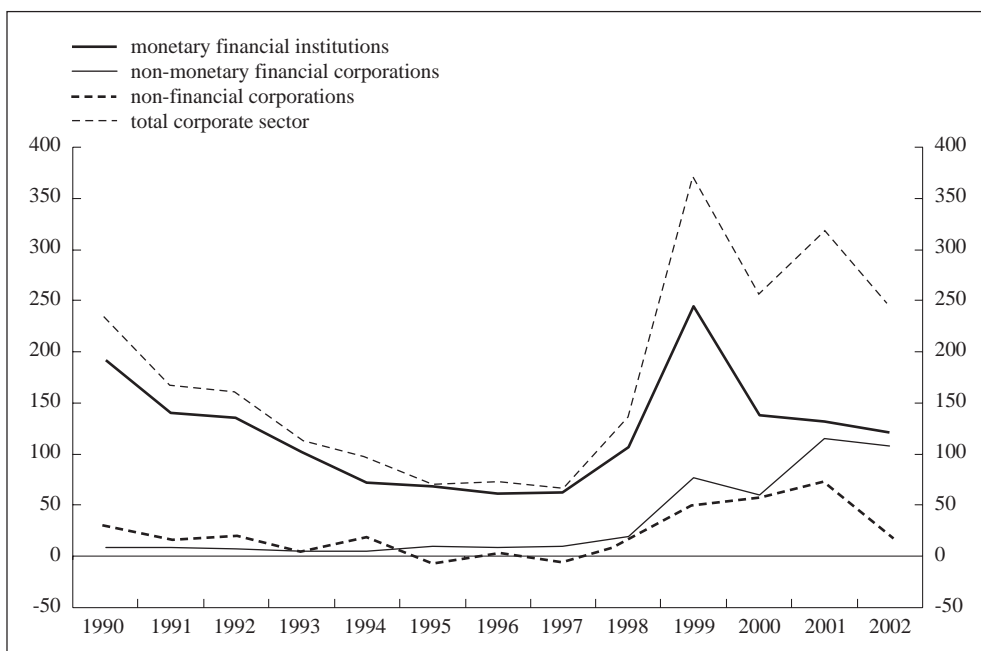


Note: Data cover information for 19 industrial countries (EU countries excluding Portugal, Canada, Japan, Norway, Switzerland and the United States) and 6 other countries, hosting major offshore banking centres (Bahamas, Bahrain, the Cayman Islands, the Dutch Antilles, Hong Kong and Singapore).

Source: Bank for International Settlements.

Brown and Matt King in Chapter 5 of this volume advances the hypothesis that temporary corporate restructuring and telecommunication industry liberalisations were mainly behind the increase in net issuance activity rather than the (permanent) introduction of the euro. However, there is one component of total issuance that continues to grow, namely debt financing by non-bank financial corporations. This can mainly be attributed to so-called “special purpose vehicles” that for tax, credit rating and other reasons issue debt for financial and non-financial corporations. In other words, a good deal of corporate debt financing is still growing in the euro area, but not in the traditional format. As this development started in 1999, it cannot be discarded at the present juncture that the euro played some role in stimulating the development of European corporate bond markets. The main economic reasons being that the single currency has made corporate debt financing more attractive by creating a much larger home-currency investor base than the case for any single country of the area before EMU and encouraged entry in the international underwriting business for euro-denominated corporate bonds driving down fees.<sup>2</sup>

Figure 2: Net issuance of debt securities by euro area corporations, 1990-2002  
(yearly flows, in EUR billions)



Source: ECB.

<sup>2</sup> For an in-depth description of euro area financial structures and development, see ECB (2002a). For further information on euro-denominated bond markets, see ECB (2001b) and Santos and Tsatsaronis (2002).

## 1. Implications of Financial System Transformation for Central Banks

The implications of structural change in the financial system are manifold and profound, in particular for central bankers, but also for other policy-makers, as outlined by the President of the European Central Bank (ECB), Wim Duisenberg, in his opening speech to the second ECB Central Banking Conference (see Duisenberg, 2002):

“First and foremost, the transformation of the financial system has an impact on the conduct of monetary policy. For example, the emergence of new financial instruments and changes in the use of existing ones affect the choice, behaviour and interpretation of forward-looking financial indicators of underlying economic variables, such as consumer price inflation and GDP growth. Moreover, the implications for the transmission mechanism of monetary policy are of supreme importance to the ECB”. An example in this respect was made by Otmar Issing, member of the Executive Board of the ECB, in his dinner speech on the occasion of the second ECB Central Banking Conference (reproduced as Chapter 3 in this volume). He concludes that recent trends in European financial markets and the ensuing competitive forces have forced banks to scale down their relationship lending activities. To the extent that relationship banking has provided a buffer in the transmission of monetary impulses to the financial sector, a reduction of scale of relationship lending activities may affect the transmission process of monetary policy and, hence, may have an impact on the euro area business cycle.

Second, financial system transformation affects the implementation of monetary policy. For example, the weekly main refinancing operations with money market counterparties are conducted on the basis of repurchase agreements (“repos”), given that the ECB and the national central banks “may conduct credit operations with credit institutions and other market participants, with lending based on adequate collateral”.<sup>3</sup> The Governing Council of the ECB has defined the list of eligible collateral for such operations. In a changing financial environment, a central bank has to ensure that eligible collateral allows market participants to have efficient and equal access to central bank liquidity.

The third example of the importance of financial system transformation to central banks, as pointed out by the President of the ECB, relates to the payments systems function. “Most central banks in industrialised countries run a large-value payments system and are involved in the oversight of other payments and securities settlement systems. For reasons of efficient liquidity management by private banks, the Eurosystem’s TARGET system allows for intra-day overdrafts that are fully collateralised. For TARGET to operate efficiently, it is therefore very important that securities settlement systems are interlinked or consolidated in a way that allows a smooth flow of collateral across the euro area”. In other words, the development of an integrated and efficient cross-border payments and securities settlement infrastructure, is of paramount importance for the functioning of monetary union.

A fourth and very topical example relates to the impact structural change in financial systems may have on financial stability. And, as Duisenberg points out: “... the structure and modus operandi of the authorities responsible for supervising financial markets and institutions must be designed to prevent any instability from arising”. Indeed, the key issue is to which extent the transformation of the European financial system has changed the prospect for financial stability and, if so, to which extent co-operation between supervisory authorities

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<sup>3</sup> Article 18.1 of the ESCB/ECB Statute.

needs to be adjusted. Moreover, an interesting and topical aspect of this debate is, what the role of central banks should be in maintaining financial stability, an issue which was at the heart of the policy panel of the second ECB Central Banking Conference and the paper presented by Tommaso Padoa-Schioppa, member of the Executive Board of the ECB (see Chapter 6 in this volume). From a European and institutional point of view, the role of central banks in financial stability is clearly defined in the Treaty on European Union. The Treaty states that the European System of Central Banks (ESCB) shall “contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system”.<sup>4</sup> Padoa-Schioppa also outlines the theoretical arguments in favour of a strong involvement of central banks in financial stability, as central banks – as “bankers’ bank” – should ensure the soundness of their counterparties and, offering the ultimate means of settlement, have a special capability to create financial liquidity. In addition, as systemic risk is increasingly becoming an issue when financial crises occur, as a result of the integration of financial markets, the role of central banks in financial stability appears to have increased.

Finally, structural change in the financial system is not only important to central bankers but to other policy-makers as well. According to Duisenberg “... all policy-makers should have a clear interest in a further integration of European financial markets. The economic literature tells us that an integration of financial markets is very likely to contribute to economic growth by making the allocation of capital more efficient ... As things stand now, it is clear that full integration of European financial markets, to the extent possible of course, has not been achieved yet, despite the introduction of the euro. Although in some areas, such as the unsecured money market or the bond market, the euro seems to have boosted market integration, in other areas, such as repo and equity markets, the impact has been much weaker. The need for further efforts in this direction is fully recognised by many institutions, including the ECB, and is at the heart of the European Union’s initiative to create a truly integrated market for financial services”.

Indeed, the ECB has taken a number of initiatives to promote financial market integration and to improve the functioning of financial markets in general, as was outlined by the Vice-President of the ECB, Lucas Papademos, in his closing remarks to the second ECB Central Banking Conference (see Chapter 7 in this volume). Papademos in particular sees a role for the ECB in the area of financial market integration when co-ordination of market participants is required and the polar cases of full competition and public action are not called for. Examples include the ECB’s role as a catalyst and co-ordinator in the creation of the EONIA interest rate index for the overnight money market, the ECB’s role in co-ordinating activities to overcome the present fragmentation of the European market for short-term securities and the ECB’s involvement in the development of integrated repo markets.

In the light of the swift development of the European financial system in the recent past, the numerous implications this transformation process directly has for central banks and the importance of this process for the more general economic policy environment in which central banks act, the European Central Bank had decided to hold its second Central Banking Conference on the topic “The Transformation of the European Financial System”. The remainder of this introductory chapter summarises the papers contributed to the conference and the related discussions. The three academic sessions each had one main paper, followed by a presentation by two discussants and a general discussion involving the audience. Our summaries focus on main lessons that can be derived from the conference both for the ECB

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<sup>4</sup> Article 105.5 of the Treaty on European Union.

and, perhaps, also for other central banks. We proceed by following the sequence of the conference program.

In line with a standard decomposition in financial system research, the first session dealt with the banking system. The main paper by Jean Dermine (INSEAD) on **“Banking in Europe: past, present and future”** particularly addresses the lessons that can be learnt from corporate structures adopted by banking firms for the integration of the banking system. The discussion by Harry Huizinga (Tilburg University) examines in greater depth various explanations for the subsidiary structures often observed in European banking and the consequences that these structures have for policies. Eric Rosengren (Federal Reserve Bank of Boston) compares them to the corporate structures in the United States and US banks’ cross-state activities. As already referred to, in his dinner speech “Relationship lending in the euro area” Otmar Issing looks at changes in the importance of relationship lending and implications that these changes may have for the monetary transmission mechanism.

The second session spanned the financial system as a whole. Raghuraj Rajan and Luigi Zingales (both University of Chicago) describe in their paper **“Banks and markets: the changing character of European finance”** a substantial development of market finance in Europe, as compared to more traditional bank credit financing, and warn that efforts by domestic interest groups to halt or even invert that process should be resisted. Franklin Allen’s (University of Pennsylvania) discussion addresses some differences between the UK experience and experiences for the United States and continental Europe discussed in the paper. He also contrasts Rajan and Zingales’ political economy view of financial system development with a different view based on market failures. Martin Hellwig (University of Mannheim) warns in his comments of a too close association between corporate finance and corporate governance, and he challenges the view that the tendency of corporate incumbents to preserve their power over corporate resources is specific to the continental European, more bank and relationship-based financial system.

Completing the standard decomposition of financial system research the third session **“Integration of bond and equity markets in Europe: the end of the portfolio investment bias?”** brought the focus back to securities markets. The main paper by Kpate Adjaouté (HSBC Republic Bank) and Jean-Pierre Danthine (Lausanne University) on “European financial integration and equity returns: a theory-based assessment” looks at the implications EMU had for the pricing of government bonds and equities, arguing that the introduction of the euro had a larger effect on equity returns than usually perceived. The second paper by Bruce Carnegie-Brown and Matt King (both JP Morgan) studies corporate bond markets and makes the point that the European issuance boom following the introduction of the euro is unlikely to be explained by the single currency. The discussion by Axel Weber (University of Cologne) questions the practicability of greater sector diversification suggested in the Adjaouté-Danthine paper.<sup>5</sup>

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<sup>5</sup> Another important dimension of European financial integration is the development of payments and securities settlement systems. These market infrastructures raise very specific issues that require different forms of analyses. Therefore, the second ECB Central Banking Conference did not attempt to cover them in any greater depth. See ECB (2000, 2001d, 2001e, 2001f) and EU Commission (2001, 2003) for discussions of those issues.

## 2. Banking in Europe: Past, Present and Future

The first paper was presented to the conference by Jean Dermine (INSEAD), who looked from a broad perspective at the past, present and future of European banking (see Chapter 2 in this volume). The key result of Dermine's empirical work is the detection of an important pattern in the corporate structures of European banking markets. Banks expanding across borders in Europe often choose to set up holding structures with foreign subsidiaries rather than to operate with branches abroad. This is an important observation, since it indicates that the single banking licence in Europe – introduced in 1989 with the Second Banking Directive – is not used very much. Therefore, an important condition for the full integration of European banking markets does not seem to be fulfilled.

Dermine's paper identifies a number of explanations for this pattern. On the side of corporate management, under a subsidiary structure debt holders are better protected against risk taking by some entities of a large bank, in particular if there is less information about the behaviour of these entities (e.g. those located in foreign countries). Also, subsidiaries can be managed more flexibly and are therefore more acceptable to local managers and shareholders. On the policy side, national corporate taxes may make subsidiaries more attractive. Moreover, the transformation of subsidiaries into branches may be hindered by corporate taxes and deposit insurance systems, whose application would be transferred from the host country to the home country. Since some of these factors are of a permanent nature, Dermine expects the situation to persist.

Corporate subsidiary structures in European banking have important policy implications, according to the author. First, their complex character may render supervisory monitoring more difficult. Second, unwinding a failed international bank with a cross-border subsidiary structure is very complex and risky, as it spans different legal systems. Third, whereas such companies tend to be relatively well diversified at the level of the holding company, the respective national subsidiaries may encounter greater failure risk due to a more pronounced local orientation. The last point reveals a relationship between corporate tax, choice of corporate structure and systemic risk that the economic literature has not addressed so far.

While reviewing the transformation of European banking from the signing of the Rome Treaty in 1957 until the present day, Jean Dermine also addresses a number of other banking policy issues. First, in contrast to wholesale corporate and investment banking services, bank retail markets are not well integrated in the European Union, partly because of information problems for small depositors and the costs of switching banks. Most local banks have preserved their retail market shares. Therefore, the author sees a need for more legislative work, not only to harmonise consumer protection laws and national supervisory practices, but also to ensure that national corporate or value-added taxes do not hinder the creation of efficient European firms. Second, in the area of competition policy, a reduction of intermediation margins in retail markets, in all likelihood related to interest rate reductions during the EMU convergence process, contrasts with increased local concentration in several EU countries. The author believes that this situation calls for strict monitoring of the degree of competition in the loan and deposit markets for small and medium-sized enterprises to avoid any impediment to growth in this sector, which is very important for employment. Finally, the bank consolidation process is likely to continue and ultimately develop a stronger cross-border dimension, leading to more very large banks. This also raises the issue of potential cross-border spillovers from large bank failures. Dermine sees a need for bank crisis management to be centralised or at least co-ordinated across Europe. He suggests that both the European Central Bank and the ECOFIN Council should be involved in case of crises

affecting large players. In order to avoid liquidity squeezes, bankruptcy procedures and deposit insurance mechanisms need to allow for quick reimbursements of depositors in the event of a winding-up.

The discussion by Harry Huizinga (Tilburg University and European Commission) concentrated on Jean Dermine's "surprising" observation of cross-border subsidiary structures in Europe. Given the long existence of a single banking license one would have expected simpler and cheaper branch structures to dominate. The limited use of those suggests that little has changed since the 1980s when host country control characterised all cross-border regulation and supervision.

The first part of the discussion details how the assignments of the main banking policy responsibilities to home and host supervisors differ for branches and subsidiaries and how these differences can be related to the choice of corporate structures. Huizinga challenges Dermine's point that tax systems can have been an important factor that caused the subsidiary structures. For example, corporate income taxation would favour, if anything, branch structures (where the granting of cross-border loss compensations by authorities seems more likely). Huizinga is more favourable to the idea that the regulatory burden played some role. As there are more elements of joint supervision between host and home countries in the case of branches, the net regulatory burden for an international branch may well be higher than for a subsidiary. While he sees deposit insurance premiums as a key factor in any legal structure choice, he questions that the heterogeneous landscape in Europe would generally favour subsidiaries over branches. Finally, Huizinga stresses quasi-fiscal elements in financial crisis management as another potential explanation for subsidiary structures. Subsidiaries tend to have a larger local depositor base and more pronounced local capital market linkages, so that under the home country principle the probability of public bailouts may be higher for them.

The second part of this contribution goes beyond the Dermine paper by addressing how subsidiary structures affect the degree of policy interdependence across EU countries. He expects them to have a dampening effect on financial-sector tax burdens, since foreign subsidiaries can use transfer price manipulations to reduce host-country taxes. Based on results of some own and other people's research, Huizinga suspects that countries use too low VAT and deposit insurance premiums to favour their own banks. He expresses hope that the creation of Lamfalussy-type committees in the banking field would lead to the introduction of minimum deposit insurance premiums and a more rigorous application of VAT in the EU. Finally, Huizinga assesses the pros and cons of a more centralised banking crisis management, such as the one involving the ECB and ECOFIN proposed by Dermine. On the one hand, this centralisation could allow decisions to be based on a broad set of relevant information and be less vulnerable to national interests. On the other hand, the internalisation of international externalities may lead to a more generous use of public funds. In Huizinga's view the net effect on moral hazard in the banking system would then be ambiguous.

The second discussant, Eric Rosengren (Federal Reserve Bank of Boston), addressed two different sets of issues. First, he compared the subsidiary structures across Europe with banking penetration across states in the United States. Second, he discussed a number of risks for European banks. He concluded by raising a number of questions for supervisory policy in Europe.

Somewhat surprisingly, Rosengren reports still existing limits to the geographic expansion of banking activities within the United States, which resemble those observed within Europe. For example, none of the five largest US banks have major operations in the New England area (the Federal Reserve Bank of Boston district), despite its proximity to New York the state with the strongest concentration of large and complex banks in this country. Similar observations can be made for other regions of the United States. More generally, only 6% of all US banks operate in more than one state and no bank has major retail operations in all regions of the US.<sup>6</sup> As geographic expansion is most easily achieved through acquisitions, the main reason for this fragmented structure is likely to be the relative attractiveness of in-market mergers, which promise greater cost savings, make outside entry less attractive and lead to enhanced profits from market power. However, despite these similarities to Europe, Rosengren still regards US banking markets as more integrated, because, first – in contrast to European banks – US banks have significantly reduced the number of their subsidiaries over the last decade and, second, subsidiaries are organised on a functional rather than a geographical basis.

In the second part Rosengren discusses three risks for European banks. First, he warns that the deregulation of banking and financial markets in Europe and increased competition from non-bank financial intermediaries may lead banks into more complex and risky strategies.<sup>7</sup> Second, he agrees with Dermine that irrevocably fixing of exchange rates in Europe may lead to more volatility in banks' markets, so that local subsidiaries' credit history may actually underestimate default risks. Third, based on previous research on the US and Japan he points to the risk that the increased foreign operations of European banks may strengthen the transmission of foreign shocks to the domestic economy in that foreign losses may induce banks to cut lending at home ("importing" a credit crunch). Rosengren's list of issues for European policy makers includes the complexities induced by nationally based deposit insurance schemes when large banks have to be unwound, the advantages of being able (as the case in the US) to have recourse to the resources of the holding company in case of a subsidiary failure, a potentially more unified early intervention program for crises of banks spanning several European countries (similar to the one proposed by Dermine), the degree of information sharing between European supervisory authorities and between supervisors and monetary policy makers.

In the general discussion Karel Lannoo (Center for European Policy Studies) made the point that the subsidiary structures observed by Dermine in cross-border banking activities could be interpreted as an argument against a centralised European supervisory authority. Interestingly, a recent research paper by a team from the International Monetary Fund came to a similar conclusion. It endorses stronger cross-border coordination among supervisory authorities but at the same time notes that "more formal cross-border arrangements through

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<sup>6</sup> One may argue that the prohibition of inter-state banking in the US has been lifted only relatively recently. However, it is still surprising that one does not see the unfolding of a strong dynamics, reflecting banks' attempts to expand geographically.

<sup>7</sup> For a comprehensive survey of the literature about bank competition and stability, see Carletti and Hartmann (2003). This literature, indeed, documents a number of episodes in which increased competition from liberalisation efforts and the development of securities markets have led to increased bank risk-taking or even bank exit rates. At the same time, the literature illustrates that bank competition also has beneficial effects on both bank efficiency and bank stability. This is also one basis for the relatively recent emphasis of the Basel Committee on Banking Supervision on "market discipline" in the form of the third pillar of its policy framework. So, the general effect of competition on banking risks is rather ambiguous.

supranational agencies seem, at this stage, premature” (Belaisch et al., 2001, p. 1). Rafael Repullo (CEMFI) added that the small number of cross-border mergers must not mean that the single market had not been successful if there was a relatively high degree of contestability. Another important consideration in this regard is that the empirical banking literature tends to argue that the geographical scope of some banking markets (in particular regarding relationship-oriented financial services) is quite limited, whereas other markets (such as securities trading) are more in step with globalisation (see e.g. Berger et al., 2002). In this light it is not so surprising any more that cross-state and cross-border bank activities remain relatively limited.

An area of particular importance for central banks is the role of banks in the monetary transmission mechanism. Otmar Issing therefore dedicated his contribution to an element of banking that is of great interest in this regard, the extent of relationship lending by euro area banks (see Chapter 3 in this volume on **“Relationship lending in the euro area”**). He first points out that central banks and the financial system are inextricably linked, as central banks rely on the financial system for the transmission of monetary policy and the financial system relies on central banks as the ultimate source of liquidity. In fact, “a stable currency and a sound financial system are the foundation of a strong economy ...”

Issing’s contribution focuses specifically on two issues. How important is relationship lending in the euro area? And, given the current trends in bank structure and competition, is relationship lending declining, and if yes, what could be the consequences? To answer these questions, Issing defines relationship lending as “banks and their customers building up agreements on terms of credit, implying for instance secured access to credit lines at pre-set prices”. As, at the micro level, relationship lending tends to insulate bank customers from liquidity or interest rate shocks, a greater use of that lending should lead, at the macro level, to a smoothening of the business cycle. This will particularly apply to continental Europe, i.e. many euro area countries, where relationship lending is much more important than in the US or the UK.

However, Europe experienced several structural trends in banking, such as significant consolidation, a strong development of securities markets and the growth of professional asset management for consumers. While the increased competition particularly originating in the latter two developments could push some banks towards relationship lending with small and medium-size enterprises, it could also discourage banks from the costly acquisition of information about borrowers, as those can switch more easily to other sources of funding. Issing quotes evidence suggesting that, on balance, relationship lending may be decreasing in several European countries. This could lead to greater exposures of borrowers to interest rate and liquidity risk. The effects may be further strengthened as the reform of the supervisory rules to protect banks against credit risk (Basel II) will make required capital more sensitive to that risk and therefore also more responsive to interest rates. The greater effects of interest rates on borrowers and lenders are of primary importance for the way in which the monetary transmission mechanism works and therefore for any central bank.

### **3. Banks and Markets: the Changing Character of European Finance**

In the second session of the conference Luigi Zingales presented a joint paper with Raghu Rajan (both University of Chicago) that addresses changes in the structure of the European financial system as a whole (see Chapter 4 of this volume). The authors identify a significant shift over the last two decades: from one mainly based on close relationships between banks

and their clients to one which is more arm's-length and competitive, in combination with and made possible by larger and more developed securities markets. This shift is marked by a sharp increase in the ratio of stock market capitalisation to GDP, the introduction of many "new equity" markets, an "explosion" of financial derivatives, and the growing importance of corporate debt issuance. (It is consistent with Otmar Issing's observation about reduced relationship lending by banks. However, it somewhat contrasts with the earlier evidence provided by Schmidt et al., 1999, who find that between 1981 and 1996 no general trend of disintermediation and no fundamental shift from a bank-based to a market-based financial system can be identified in the three largest European economies. In a similar vein, ECB (2001c) and Hartmann et al. (2003) provide empirical evidence suggesting that despite growth of market-based financial instruments in the euro area in absolute terms, no regime change in corporate financing can be identified in which between 1995 and 2001 public equity and debt securities substituted loans and private equity to a substantial extent.) The reasons for this development can be found in the creation of a common market for goods and services, the exposure of domestic financial institutions to foreign competition as a consequence of EMU, the favourable effects of the elimination of currency risks on corporate bond markets and the process of European integration in general. The authors' analysis leads them to welcome this development and to recommend that it should continue in the future. They express concern, however, about the uneven distribution of its benefits within Europe. To function well, markets require a well-designed legal and regulatory infrastructure. While northern European countries seem to have developed such infrastructure, southern Europe still lags far behind. These distributional effects as well as other political factors may slow down the development of markets in the near future, or even reverse it.

Rajan and Zingales put forward a number of strong proposals to help avoid such a "great reversal". First, the European Union should promote structural reforms, especially in southern European countries, in order to develop an effective arm's-length market-based system and to cushion the distributional effects. Second, the authors think that the European Union should focus on enlargement rather than on accelerating political union, as enlargement would increase economic competition. The introduction of new divergent interests would make co-ordination of particular interests and lobbying more difficult, thus reducing the political threats to markets. Third, the European Union should favour a division of power between local and central authorities over centralisation, so as to prevent a reduction in political competition. In particular, supervisory functions should not be centralised within the European Central Bank, because this would make the ECB too powerful and thus more vulnerable to political pressure, which could lead to regulations unfavourable to financial markets.

This assessment is based on the authors' research on the historical development of financial systems (see Rajan and Zingales, forthcoming). Their fundamental thesis is that relatively closed economies in which political power is more centralised exhibit significantly less financial development, in particular regarding the advance of arm's-length market-based financing. The main reason is that closed economies with centralised political powers provide favourable conditions for local interest groups to lobby for measures that protect incumbent financial firms against outside competition. This ensures the continuation of relationship-based financing practices even when arm's-length markets would be more efficient.

Franklin Allen (University of Pennsylvania) discussed several main themes of the Rajan and Zingales paper from two broad perspectives. Some themes he exposed to the experience of the United Kingdom, which in his view had not received enough attention in the paper.

Other themes he juxtaposed with the results of previous research on financial systems he had conducted jointly with Douglas Gale (New York University).

Allen feels that the historical experience in the United Kingdom represented an interesting contrast to the ones of both continental Europe and the United States. Most importantly, the UK financial system cannot simply be lumped together with the US in the same category of market-based financial system. For example, UK securities markets were historically different from those in the US, as they were very little regulated until about two or three decades ago. The UK's banking system is also very different in that it is much more concentrated than the US banking system.

A fundamental building block of Rajan and Zingales' view is that mainly political economy factors determine which type of financial system emerges. Again, Allen thinks that this theory was not directly applicable to the UK, as incumbent firms and banks were not successful in lobbying for restrictions on markets in this country. Similarly, the claim that central banks are generally anti-market is difficult to reconcile with the UK case, in which the Bank of England – if anything – seems to have been pro-market for most of the time. Allen suggests that the authors would document systematically where central banks in different countries have acted against the development of financial markets.

In the second part of the discussion Allen observes Rajan and Zingales' belief that in a modern economy a market-based financial system is significantly superior to a bank-based system. Based on Allen and Gale (2000, Chapter 7), he argued that this view neglects the fact that the advantages of markets in terms of information processing and dissemination can be offset by the increased volatility and therefore higher risks associated with the more informative nature of securities prices. He urges more empirical research on which of the two effects dominates before strong conclusions are drawn about the superiority of one or the other type of financial system. In a similar vein, Allen questions whether continental Europe, with its bank-based financial system, had really "fallen behind" the US. Between World War II and 1980 Continental Europe seems to have outperformed both the US and the UK, e.g. in terms of growth. The more recent period in which the latter economies grew faster than the former is still relatively short, in particular as it coincided with the information-technology driven stock market boom.

Finally, Allen contrasts Rajan and Zingales' theory of financial system development based on failures in the political system with his and Gale's theory of market failures leading to boom-bust cycles (Allen and Gale, 2000, Chapter 2). As financial markets develop, there may be agency problems that lead to asset price bubbles. When the bubble bursts, regulations are imposed that limit the importance of markets. However, often regulations are not effective and lead to distortions in the allocation of resources. Therefore, after some time re-liberalisation will follow and a new bubble can emerge. Allen concludes with a policy advice for central bankers. If central banks are successful in keeping credit growth under control, such asset price bubbles could be avoided.

The second discussant, Martin Hellwig (University of Mannheim), further elaborated on two sets of issues the paper by Rajan and Zingales is dealing with. First, he examined whether market-based finance is really "more advanced" than bank-based finance. Second, he studied to which extent one can associate corporate finance structures with corporate governance structures.

On his first point, Hellwig summarises available evidence, saying that empirical analyses do not permit yet to conclude that arm's length, market-based systems are more desirable than relationship-based, bank-dominated systems. For example, the "Washington consensus" in

1998 seems to have suggested that the Korean financial crisis of 1998 was caused by a system of insider dealings among large corporations and banks. However, for macroeconomic reasons the economy recovered relatively fast, and it was impossible to test the counterfactual, namely that under a less relationship-based financial system the crisis would not have occurred. Similarly, while it is true that the effects of the “stock market implosion” of the past two years on industrial economies have been remarkably mild, this resilience was largely related to the fact that consumers rather than financial institutions have borne most of the disaster. And one cannot be sure that consumers will continue to absorb shocks of that magnitude in the future. Finally, differences in standards of living between the United States and Japan, or between the United Kingdom and Germany would not suggest a general superiority of market finance. In this light, Hellwig expresses concern that ranking market-based financial systems above bank-based systems may be a political value judgement – even though one he may personally agree with – rather than the result of an assessment of economic performance.

On his second point, he warns that financial structures and financing relations do not necessarily contain information about the efficiency of underlying governance structures. For example, in the 1990s Daimler-Benz listed at the New York Stock Exchange to extend market financing and successfully lobbied against takeover legislation in Germany and Europe that would have allowed a more active market for corporate control. Moreover, in his view there was not a clear enough understanding about the relative benefits and costs of systems based on internal finance, as opposed to systems based on firm payouts and reinvestments through intermediaries or markets. For example, Alfred Chandler in his book about industrial capitalism describes the United Kingdom as not being able to participate in the Second Industrial Revolution, because large shareholders interfered with corporate development. This happened despite the presence of a financial system that was very much based on external finance. A close association between governance and the traditional market- and bank-finance paradigms, as followed in the Rajan and Zingales paper, risks missing the important observation that the tendency of corporate managers to emancipate themselves from outside financiers is a general observation, e.g. applying to both the United States and continental Europe. In Hellwig’s view the recent accounting scandals in the US are a point in case, and should not be played down as unfortunate exceptions that just provide an impetus for further improvements of the market-oriented system.

The general discussion revolved very much around two further issues. First, the conceptual distinction relationship-based and arm’s length financial systems was tested against the traditional distinction between bank and market based financial systems (as in Allen and Gale, 2000). In line with some recent other literature (see e.g. Demirgüç-Kunt and Levine, 2001, or ECB, 2002a), the discussion converged towards the view that an efficient financial system would always combine significant aspects of the two theoretical extremes. Günter Franke (Konstanz University) even mentioned an example of a specific financial instrument that combined relationship and arm’s-length aspects, the collateralised debt obligation. Second, the relationship between transparency and stability addressed by Allen was debated further. For example, Christian de Boissieu (Université de Paris I, Panthéon-Sorbonne) remarked that also in the area of banking not all information should always be released, e.g. the detailed internal information gathered by supervisors. Finally, the audience strongly rejected the idea that central bankers have an inherent bias against financial markets, as postulated by Rajan and Zingales.

#### 4. Integration of Bond and Equity Markets in Europe: The End of the Portfolio Investment Bias?

The third session of the conference finally focused on the securities markets themselves. The main paper “**European financial integration and equity returns: a theory-based assessment**” by Kpate Adjaouté (HSBC Republic Bank) and Jean-Pierre Danthine (Lausanne University) challenges the view that the introduction of the euro had only a minor impact on European equity markets (see Chapter 5 in this volume). In fact, around the start of Stage Three of EMU the asset management industry underwent a paradigm change, moving from top-down country-based equity allocation strategies to top-down global sector-based equity allocation strategies. Drawing on a battery of new econometric techniques and portfolio optimisation models, the authors suggest that the euro has made a significant contribution to this development. The single currency rendered country-specific factors in equity returns less important, as it has led to more uniform fundamental economic variables across the euro area, such as a single “risk-free” interest rate (constituted by benchmark government bond yields), commonly low inflation and greater synchronisation of business cycles, the single currency rendered country-specific factors in equity returns less important. This means that portfolio managers can increase return on investment now by diversifying across global industry sectors; diversification across euro area countries has become quasi-obsolete.

This fact is illustrated by figure 24 in the paper (see page 223). It traces the evolution of the dispersion of euro area equity returns over time. The higher a point on any of the lines in the figure, the greater the dispersion and the diversification benefits for equity portfolio managers. The black line shows the dispersion of country index returns and the light grey line the dispersion of sector index returns. From the fact that the black line is above the light grey line for most of the time between 1973 and 1998, one can infer that significant diversification benefits existed from investing across countries. However, this is no longer true for the recent period of the euro. In 1999 the light grey line moved above the black line, indicating that it had become more attractive for portfolio managers to diversify across sectors. The superiority of sector diversification for this period is also confirmed by mean-variance portfolio optimisations. Although this phenomenon has now persisted for more than three years, the authors of the paper caution that there is no guarantee yet that all these changes will be permanent, since the figure also illustrates the highly time-varying character of equity return dispersions.

However, an even more striking finding by Adjaouté and Danthine is that the dispersion of equity returns across sectors *and* countries (represented by the dark grey line in the figure) remains for the whole sample well above the other dispersion indices, i.e. from 1973 to 2002. In other words, whereas euro area asset managers increasingly diversify across industry sectors, they could make significantly higher profits by following a more disaggregated approach, diversifying simultaneously across countries and sectors. Since these results are also confirmed by portfolio optimisation models, the authors discovered an important “puzzle”, namely that asset managers seem to forgo these profits.

Another important finding reported in the paper is that the introduction of the euro has made benchmark government bond yields significantly less volatile, constituting a “watershed” for public debt securities markets. (This phenomenon is also observable for traditional low inflation countries, such as e.g. Germany.) However, the authors also point to the fact that from a microstructure perspective the establishment of a single public debt market is still not complete and that the yield differentials caused by this fragmentation costs

treasuries, ultimately taxpayers, up to 5 billion euro per year. Moreover, on a more positive note, the euro area seems to fulfil an important condition derived from capital market theory under which further progress in the integration of equity markets would lead to a lower cost of capital for euro area firms and therefore stimulate economic growth.

The first discussant, Bruce Carnegie-Brown, presented a joint paper with Matt King (both JP Morgan) about the **“Development of European bond markets”** (also reproduced in Chapter 5 of this volume). The paper mainly focuses on corporate bonds, both from the side of issuance and from the side of investment, and addresses other relevant developments, e.g., in the asset management industry. It briefly documents the euro “bond issuing boom”, exhibiting a tripling of corporate issuance, that took place in parallel with the first years of EMU (see also Figure 2 above). Carnegie-Brown does not think, however, that the introduction of the euro was a major cause for it, as issuance seems to have been proportional to loan provision and M&A activity in Europe and happened on a similar scale in the United Kingdom.<sup>8</sup> He rather regards corporate restructuring by firms as the main source, notably in relation to the technology, media and telecommunications (TMT) sector. European bond markets cannot be analysed in isolation of loan markets, which still account for 87% of all corporate borrowing. The discussant expects banks to become less willing over time to extend that much lending, so that refinancing of loans in the bond market will drive future growth. Interestingly, however, loan spreads for BBB-rated firms tend to be lower than bond spreads since some time now, but this situation should not persist indefinitely.

Various developments will also favour European bonds on the investment side. Aging and reforms of retirement regimes will lead to further growth of pension funds (an estimated 1 trillion euro over the coming three to five years). The current bear market drives asset allocations away from equities into bonds, but several structural features suggest that the greater importance of corporate bond investments may persist in the longer term (discounting of liabilities through corporate bond yields, greater certainty about future returns, legislative changes, etc.). Also, the still huge amount of bank deposits in Europe (about twice the amount in the US) will be gradually shifted into more attractive instruments, notably through institutional investors such as life insurers, mutual and pension funds into bonds. Finally, convergence of yields has made trading in government bonds less attractive for asset managers, which will further increase the attractiveness of corporate bonds. Overall, Carnegie-Brown expects the European corporate bond market to grow at a healthy rate in the foreseeable future.

Axel Weber (University of Cologne), the second discussant, described the approach of Adjaouté and Danthine as using asset pricing models, more precisely the international capital asset pricing model (I-CAPM), to shed light on the question how the euro affected the

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<sup>8</sup> This perspective from the market somewhat contrasts with recent research by Bris et al. (2002). These authors find significant effects of EMU on firm valuations, firm investments and bond financing, relative to a control group of non-euro area European countries. In their view, not only has EMU led to increased bond issuance but they also consider it to be a good thing, as many firms benefited in terms of their equity valuations. Also, Rajan’s and Zingales’ conference paper in chapter 4 estimates an independent effect of the euro on corporate bond issuance. Santos and Tsatsaronis (2002) associate the euro-denominated bond issuing boom with entry of mainly US investment banks that led to a significant reduction of underwriting fees in the primary European bond market. The incentive to enter may have partly been related to EMU. Finally, Galati and Tsatsaronis (2001) see a clear link between the arrival of the euro and European bond market development.

integration of bond and equity markets. The literature is divided about whether, on balance, EMU would lead to less cross-area diversification, as regional divergences fade, or more cross-area diversification, also reducing the “home bias” phenomenon. The discussant’s list of sources of “home biases” includes transaction costs (including cross-border settlement costs), taxes, currency matching rules for institutional investors, psychological factors, asymmetric information and “consumption insurance” (domestic shocks tend to insure better against domestic inflation than foreign stocks). Despite the general internationalisation of financial markets and expanding cross-border investment and financing, considerable “home biases” remain in the euro area, as several of the above factors did not vanish.

Weber advances several points of criticism. First, owing to the high degree of time-variability of the correlation patterns the evidence supporting the superiority of industry portfolios over country portfolios is not very strong. Second, as the euro led to increased correlation across euro area markets, he expects external securities to have become more attractive for domestic investors, thereby further changing the risk-return characteristics of euro area financial markets. The paper could usefully have covered this effect. Third, he wonders whether one could really expect a fully integrated bond market in Europe, as regional inflation differences are likely to persist. Fourth, Weber asks whether an efficient sector diversification can be achieved in practice, as progress with the single market may increase sector correlation further, some of the industry sectors may be quite small and information problems may be more pronounced at the industry sector level than at the country level. Finally, he claims that standard trade theory would predict that under complete specialisation and full integration sector and country correlation should become identical within Europe.

In the general discussion Danthine defended the idea of easier sector diversification through the emergence of exchange traded funds and denied that sector correlation could fully converge as the fundamentals would not be equalised. Charles Goodhart (London School of Economics) pointed to the fact that the use of real bond yields in the paper instead of nominal yields would have led to less uniform interest rates in the euro area. He also argued that part of the strengthened sector effects found by Adjaouté and Danthine may be related to a global trend rather than a specific European phenomenon. Recent research by Brooks and Del Negro (2002) confirms that the “dot-com” bubble caused a good deal of the global increase in stock market co-movements. However, within Europe much increased sector effects are robust to the exclusion of the TMT sector and, in line with Adjaouté and Danthine, point towards a more fundamental increase in equity market integration after 1998. Carnegie-Brown expressed his expectation that the sizes of the European and the US corporate bond markets would converge over time.

## **5. Central Banks and Financial Stability**

The panel on central banks and financial stability concluded the Conference. Tommaso Padoa-Schioppa, Jaime Caruana, Andrew Crockett, Roger Ferguson, Charles Goodhart and Alexandre Lamfalussy were the contributors. The contributions were far-reaching and it is not possible to provide a complete overview in this introduction. Nevertheless, it may be useful to emphasise a number of common elements around a number of main themes: First, background dynamics, useful for understanding the involvement of central banks in financial stability, as it evolved over time; second, the definition of financial stability; third, the

rationale for the involvement of central banks in financial stability; fourth, the tools available in the pursuit of financial stability; fifth, the relation of financial stability with other public policies and, specifically, monetary policy and prudential supervision; sixth, specific issues relevant in the context of the euro area and of the European Union; seventh, broader issues pertaining to the global international financial system. To a great extent the above list follows the paper by Tommaso Padoa-Schioppa, **“Central banks and financial stability: exploring a land in between”**, which introduced the panel (see Chapter 6).

In the last two or three decades a number of developments took place with relevance for the relation between central banks and financial stability. In the early seventies there was a historical change with the collapse of the Gold Standard and the transition to a pure *fiat* monetary regime. The demise of the commodity standard originated in the unsustainable expansion of international liquidity; strong growth in government spending, especially in the US, and excess demand for energy leading to the first oil shock. The Great Inflation of the seventies followed and with it a prolonged period of monetary instability.<sup>9</sup> During this period, stagnating economic activity, persistent budget deficits, exchange rate instability and high and volatile interest rates accompanied inflation. Gradually a consensus emerged on the need to assign to monetary policy the goal of maintaining price stability. Moreover, the responsibility for conducting monetary policy was firmly put in the hands of independent central banks. At the same time the analytical framework for monetary policy was developed including a vast array of quantitative models and other analytical tools. In the recent past, in a number of countries, the task of banking supervision was removed from central banks and assigned to a different public authority. This trend raises the question: What is the role (if any), of a central bank without supervisory responsibilities, in the area of financial stability? This is the “land in between” travelled in Tommaso Padoa-Schioppa’s paper. Drawing on Banco de España’s experience as supervisor, Jaime Caruana emphasised the knowledge and expertise synergies, generated in an institution (i.e. the central bank) that is involved in the management of liquidity, in the context of the implementation of monetary policy, in payment systems and in supervision of individual credit institutions. According to him, “central banks involved in banking supervision are in an optimal position to assess the problems affecting individual institutions or the banking system as a whole, as well as the potential impact of macroeconomic events or shocks.”

During roughly the same period the international financial system underwent an important transformation. Specifically, the financial system was de-regulated and liberalised. International financial linkages have become more important. At the same time, the links and interdependencies between the financial system and economic activity have also become more important. During this period the relative importance of financial activity channelled through financial markets increased much more rapidly than through financial institutions. At the same time, the interdependence between financial markets deepened so much that Andrew Crockett refers to a “symbiosis”. Tommaso Padoa-Schioppa and Roger Ferguson cover the same theme.

The second main theme, in the panel, was the definition of financial stability. Financial stability is of perennial importance. However, interestingly enough, it is not easy to find a generally agreed definition in the literature. In most cases, financial stability is defined as the absence of, or on the basis of, financial instability. This is the path chosen by Roger Ferguson.

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<sup>9</sup> See the contributions to the first ECB Central Banking Conference, Garcia Herrero et al. (2001).

He defines financial instability on the basis of three criteria (page 316): 1) Sharp divergences of asset prices from fundamentals; 2) significant distortions in market functioning or credit availability leading to 3) significant deviations of aggregate spending from potential output. Financial instability leads to highly undesirable outcomes in terms of social welfare. Therefore, it justifies a keen interest on the part of central banks and other public authorities. According to Roger Ferguson, public authorities are involved in policies aiming at promoting financial stability in two distinct roles: prevention of instability and management of instability. Tommaso Padoa-Schioppa offers, instead, a direct definition of financial stability (page 287). Loosely speaking, stability is defined as resilience. Specifically, financial stability is defined as a condition of the financial system, when it is able to withstand shocks without giving rise to cumulative dynamics impairing its proper role in the allocation of resources in the economy. After proposing this broad definition of financial stability Tommaso Padoa-Schioppa concludes: "...this definition permits a complete view of the ways in which savings are channelled towards investment opportunities, information is disseminated and processed, risk is shared among economic agents, and payments are facilitated across the economy." In the same vein Crockett argued for "an holistic approach to financial system stability" stressing the need for robustness of the financial system as a whole. The overall environment of the financial system must be robust including aspects like: "the legal system, accounting and auditing arrangements, corporate governance practices and mechanisms for disclosure and transparency".

The third main theme of the panel was the rationale for central banks' involvement in financial stability. In his contribution, Tommaso Padoa-Schioppa focuses on the pure case of a central bank without the direct responsibility for banking supervision. Focusing on this pure case allows for a deeper understanding of the central bank's involvement in financial stability. Moreover, it also fits the case of the European Central Bank and of the Eurosystem – the euro area's system of central banks.

Tommaso Padoa-Schioppa argues that central banks are involved in financial stability for two fundamental characteristics linked to their activities as issuers of money (pages 273f.). First, as any soundly managed financial institution, a central bank needs to gather information on its counterparties. Such knowledge is necessary to control and contain counterpart risk. Second, and most importantly, the central bank is the sole provider of the final means of settlement. The latter aspect leads to a singular role for central banks in ensuring market liquidity and in preserving orderly market conditions. The participants in the panel referred to this aspect in various ways. Alexandre Lamfalussy covered it in a particularly clear way (page 324): "The starting point is straightforward. There is agreement, I believe, on the crucial role to be played by central banks in crisis management. Whenever there are good reasons to believe that a systemic crisis is about to erupt, central banks have the duty to increase global liquidity, and they have the duty to contribute to the smooth functioning of payment systems." Andrew Crockett refers to the same in a very succinct manner (page 321): "Central banks have a key role here given their liquidity creating powers and their instinctive focus on overall systemic stability."

Looking back at the history of central banks both Tommaso Padoa-Schioppa and Roger Ferguson find financial stability at the very roots of central banking. Roger Ferguson states (page 317) that: "Going back to the basics of the theory of central banking, Bagehot and Thornton described central banks as a potential source of emergency liquidity support for financial markets...". Tommaso Padoa-Schioppa said that financial stability is part of the "genetic code" of central banks (page 274). It is probably warranted to quote the words of Walter Bagehot, in *Lombard Street*:

“In wild periods of alarm, one failure makes many, and the best way to prevent the derivative failures is to arrest the primary failure that causes them. The way in which the panic of 1825 was stopped by advancing money has been described in such a broad and graphic a way that the passage has become classical. ‘We lent it’ said Mr. Harman, on behalf of the Bank of England, ‘by every possible means and in modes we have never adopted before; we took in stock on security, we purchased exchequer bills, we made advances on exchequer bills, we not only discounted outright, but made advances on the deposit of bills of exchange to an immense amount, in short, by every possible means consistent with the safety of the Bank and we were not, on some occasions, over nice. Seeing the dreadful state in which the public were, we rendered every assistance in our power.’ After a day or two of this treatment, the entire panic subsided, and the ‘City’ was quite calm.”

In the panel there seem to be complete agreement on that; in the event of a crisis the central bank is the only institution that can provide liquidity quickly. There is a full set of related issues of great importance. For example, the distinction between illiquidity and insolvency and the co-operation between the various public authorities concerned, including central banks, supervisors and fiscal authorities. These were further discussed in the panel and will be briefly accounted for in what follows.

The fourth main theme covered the tools that public authorities may use in their pursuit of financial stability. One of the main contributions from Tommaso Padoa-Schioppa in this respect stems from his Table 1 (page 288) entitled “Tools for maintaining price stability and financial stability”. It includes a complete list of tools available for monetary policy and supervision purposes, the intention of which is to contribute to clarify the tools available to the pursuit of financial stability (“the land in between”). This “land in between”, including the relations with monetary policy and supervision (the fifth theme of the panel discussion), was explored not only in the paper that introduced the panel, but also by the other contributions to the panel. Roger Ferguson and Andrew Crockett focused on the link between financial stability and macroeconomic developments. Jaime Caruana and Alexandre Lamfalussy stressed the relation between micro- and macro-prudential aspects and the relations with supervision (and regulation). Charles Goodhart, in turn, put much emphasis on the relations between central banks and fiscal authorities (see below).

Lamfalussy concluded his contribution to the panel discussion with what he labelled an awkward issue: “There seems to be a fairly general agreement that the collapse of the equity market bubble, and the associated increase in asset price volatility, bears some responsibility for our current hardships. Could or should central banks try to rein in the markets proclivity towards irrational exuberance? If not, could or should anybody care about it?” The question was also raised (and discussed) in the contributions by Ferguson and Padoa-Schioppa.

Many of the preceding remarks were made with a reference to the euro area or the European Union, and we will visit some of these in more detail now (the sixth theme of the panel discussion). A further contribution from the introductory paper comes from the identification of the concept of system in “financial system” with the singleness of the currency and the central bank. This conceptual point has very important and deep policy implications. Specifically Padoa-Schioppa concludes (page 306): “As a euro area system has been created from the very fact of adopting the single currency, and since the internal integration of this system is progressing apace, financial stability concerns have effectively become a euro area wide issue.” And then goes on: “... the unique challenge faced by the ECB lies in the threefold separation between the regulatory body (the EU), the single currency area

(the euro area) and supervisory jurisdictions (each euro area country). This threefold separation requires special forms of co-operation between public bodies.”

In this context, Alexandre Lamfalussy focused on the proposed extension of the Lamfalussy approach – designed by the Committee of Wise Men (2001) for the securities markets – to banking and insurance. He concentrated on banking and argued that the application of the four-level approach in this field is a sensible enterprise. He did voice, however, a number of concerns. These included the need to take prudential considerations into account when preparing banking regulations and the need to involve central banks not only in crisis management but also in crisis prevention. Jaime Caruana covered the same ground from the particular perspective of a national central bank, participating in the Eurosystem and entrusted with banking supervisory tasks.

Charles Goodhart raised the issue of the relation between central banks and fiscal authorities in crisis resolution. Central banks can provide relief in the case of illiquidity. However, Goodhart argues, it is rare that liquidity problems are independent from solvency concerns. Now, when the question becomes of whether to bail out a bank whose solvency is threatened or compromised, the issue moves into the realm of fiscal authorities. Their involvement is made necessary from the need to stake out taxpayers’ money. In practice, it is never clear where illiquidity ends and insolvency starts. This problem is, of course, a general one. Nevertheless, Goodhart, strongly emphasises its particular relevance for the European Union and the euro area. He states: “Within the euro area the ECB operates at the level of the Eurosystem, but it has no fiscal counterpart. There is no competence for the EC budget to extend funding to the resolution of financial crises. Hence the relevant fiscal authorities have, perforce, to be at the national level. (...) Unless the euro-system is prepared to face this fiscal issue squarely, I see no alternative to the present trend towards euro financial stability control via committees consisting of national authorities.”

On the last theme, Andrew Crockett referred to risks relevant to current economic developments in G3 economies. He also covered issues concerning the involvement of central banks with International Financial Institutions and the Financial Stability Forum.

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## Banking in Europe: Past, Present and Future

Jean Dermine\*

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## Introduction

In April 1983, a White Paper on financial integration<sup>1</sup> by the European Commission called for further work to be done in order to achieve a better allocation of savings and investment in the European Community. Following various European Councils, the 1986 Single European Act,<sup>2</sup> the 1988 Council directive on the liberalization of capital movements,<sup>3</sup> the 1992 Treaty on European Union,<sup>4</sup> the creation of the Euro in 1999, and the Financial Services Action Plan, legal barriers to an integrated European banking market have been progressively dismantled. Twenty years into this transformation period, we review the impact of this legislation on the European banking industry, the commercial banks, their customers, and regulators. A review of this twenty-year period will hopefully help to better understand the dynamics of the transformation and potential future developments.

This paper is divided into four sections. In Section 1, we review the history of European banking integration, the costs of “non-Europe” as they were evaluated in the mid-eighties, and the welfare benefits that have accrued to consumers. In Section 2, we attempt to better understand the remaining barriers to the creation of a truly single European banking market. In particular, we argue that the concept of a bank with a single license operating with cross-border branches is more a myth than a reality. Indeed, cross-border consolidation very often appears to take the form of subsidiaries, not branches. We carefully examine the *raison d’être* of the many bank mergers, which took place between 1990 and 2002, in Section 3. The analysis covers not only the real sources of economies of scale and scope, but also the financial sources resulting from a better international diversification of risks. Finally, in Section 4, we address three public policy issues raised by the process of consolidation: investor protection in international banking, the impact on banking supervision, which, historically, has been conducted by each member state, and the impact on competition and stability. The main conclusions of the paper are summarized at the end.

The public policy implications to draw from the paper are fourfold: First, European countries of smaller size, such as the Netherlands and Switzerland, would face severe economic hardship should one of their large national banks default. Second, as banks often expand across borders with subsidiaries, the winding up of such institutions would be quite complex. Moreover, the closure of an international bank would likely have cross-border spillovers. Centralization, or at least European-wide coordination, of the decision to close or bail out international banks would be needed. Third, more legislative work appears necessary, not only to harmonize consumer protection laws and national supervisory practices, but also to ensure that national corporate or value-added taxes do not hinder the creation of efficient European firms. Fourth, if domestic consolidation has contributed significantly to operating efficiency, it has increased the degree of concentration in several EU countries. Strict monitoring of the degree of competition in the banking industry is needed in order to facilitate the growth of the small and medium size enterprise (SME) sector, which employs more than fifty percent of the labor force in the European Union.

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<sup>1</sup> European Commission (COM 83 207).

<sup>2</sup> OJL 169, 29.6.1987.

<sup>3</sup> Council directive on the application of Article 67 of the EEC Treaty, June 1988.

<sup>4</sup> Europe document n° 1759/60.

## 1. European Banking: From Fragmentation to Integration

A brief review of developments in the legal environment (1.1) is followed by: (1.2) an analysis of the specific impact of the euro on the banking industry, (1.3) an analysis of additional sources of change, and (1.4) their twenty-year-impact on the integration of the European commercial banking industry.

### 1.1 *Developments in the Legal Environment*

The actions taken by the European Commission and the Council of Ministers can be divided into five time periods: Deregulation of entry into domestic markets from 1957 to 1973, various attempts toward harmonization of regulations from 1973 to 1983, the “1992” directives regarding a single banking license, home country control, mutual recognition, and freedom of cross-border services, the creation of the single currency in 1999, and the Financial Services Action Plan (2001-2005).

#### 1.1.1 *Deregulating Entry (1957-1973)*

The objective of the 1957 Treaty of Rome was the transformation of highly segmented national markets into a single common market. This objective was achieved by means of two types of measures: The recognition of the right of establishment and the coordination of legislation wherever necessary. In June 1973, the Council adopted a directive on *The Abolition of Restrictions on Freedom of Establishment and Freedom to Provide Services for Self-employed Activities of Banks and Other Financial Institutions*.<sup>5</sup> This directive applies the national treatment principle, which ensures the equal regulatory and supervisory treatment of all firms operating in one country. Although in 1973, entry restrictions could not be discriminatory, the objective of the initial treaty was still far from being met. International competition, through the supply of crossborder services, was severely restricted by regulations on capital flows. Furthermore, there was no coordination of banking supervision, so that banks operating in different countries could be subject to different rules. This additional burden raised the costs of operating internationally. This led to the second phase of attempts to harmonize regulations.

#### 1.1.2 *Harmonization of Banking Regulations (1973-1983)*

Progress in harmonization came in 1977 with the adoption of the First Banking Directive on *The Coordination of Laws, Regulations and Administrative Provisions Relating to the Taking Up and Pursuit of Credit Institutions*.<sup>6</sup> This directive established the principle of home country control. Responsibility for the supervision of credit institutions operating in two or more member countries would gradually be shifted from the host to the home country of the parent bank. The 1977 directive was a first step toward the harmonization of the regulations. It was a general program, which, without providing any specific regulation, called for further directives.<sup>7</sup>

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<sup>5</sup> Directive 73/183/EEC.

<sup>6</sup> Directive 77/780/EEC.

<sup>7</sup> Directives on *Supervision of Credit Institutions on a Consolidated Basis*, on a *Uniform Format for Bank Accounts*, and on *Consumer Protection* were adopted by 1987. The First Banking Directive initiated work on winding up and liquidation and on the mortgage market.

After the 1977 First Banking Directive, the European banking markets were still fragmented for the following reasons:

- A bank wishing to operate in another country still had to be authorized by the supervisors of that country.
- A foreign bank remained subject to supervision by the host country, and its range of activities could be constrained by host country laws.
- In most countries, branches had to be provided with earmarked capital as if they were new banks.
- Finally, as already mentioned, the supply of international services was severely impaired by restrictions on capital flows.

The inability to agree on a common set of regulations prompted a new approach toward European integration.

### *1.1.3 The Completion of the Internal Market (1983-1992)*

While most international agreements have used the national treatment principle, which ensures the equal treatment of all firms operating in one country, the European Commission has used a powerful method of integration: home country control with very minimal harmonization of national regulations.

In 1985, the European Commission published a White Paper on *The Completion of the Internal Market*, which provided for the free circulation of persons, goods, and capital in the European Union. In the context of banking, the White Paper called for a single banking license, home country control, and mutual recognition.<sup>8</sup>

These principles were incorporated into the Second Banking Directive,<sup>9</sup> under which, all credit institutions authorized in an EU country would be able to establish branches or supply cross-border financial services in the other countries of the EU without further authorization, provided that the bank was authorized to provide such services in the home state.

The banking model adopted by the EU is the universal banking model, which permits banks to undertake investment banking activities, while leaving it to national regulators to control financial conglomerates, the ownership structure of banks, and their relationship with the industry. The Second Banking Directive called for home country control on solvency,<sup>10</sup> which, under this directive, extends to the bank itself, its foreign and national subsidiaries which have to be consolidated for supervisory purposes, and its foreign branches. With regard to the latter, the host state retains the right to regulate a foreign bank's activities in that state only to the extent that such regulation is necessary for the protection of the "public interest". Thus, the manner in which a bank markets its services and deals with customers can be regulated by the "host state". The "host state" may also intervene in those matters that have been expressly reserved to it, notably liquidity, monetary policy and advertising. A bank constituted in a member state has the right to open a subsidiary in another member state on the

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<sup>8</sup> The principles of home country regulation and mutual recognition have been inspired by the famous 1987 case *Cassis de Dijon* (EC Commission vs Germany. 205/84, ECR 3755). In this case, the European Court of Justice found that Germany could not prohibit the import of liquor that was lawfully produced and sold in France solely because the alcoholic content was too low for it to be deemed liquor under German law.

<sup>9</sup> Directive 89/646/EEC.

<sup>10</sup> As discussed in Norton (1991), the EC directives have basic ideas in common with the Basle Concordat (June 1993) on guidelines for consolidated supervision, and the division of supervisory responsibilities between the home and host states.

same conditions as nationals of the latter state. The establishment of a subsidiary bank is subject to the control of the country in which it is established since that is the “home state”.<sup>11</sup>

To address the need for a minimal harmonization of regulations, the Second Banking Directive called for harmonized capital adequacy standards and large exposure rules, and supervisory control of banks’ permanent participation in the non-financial sector. A major supportive piece of legislation was the 1988 Directive on Liberalization of Capital Flows. This directive, however, contained a safeguard clause authorizing member states to take necessary measures in the event of balance of payments problems.<sup>12</sup> Some uncertainty, therefore, existed, concerning the complete and permanent freedom of capital flows.

A directive on Deposit Guarantee Schemes<sup>13</sup> was accepted by the Council of Ministers in 1994. This directive provides for mandatory insurance for all EU financial institutions. The coverage per depositor is a minimum of €20,000, with a franchise of a maximum 10%.

The 1992 Maastricht Treaty on European Union has confirmed the Single Market program. Although the primary objective of the European System of Central Banks (ESCB) is to maintain price stability, there are explicit references to regulation and supervision in the Treaty:

**Article 105 (2)**

*“The basic tasks to be carried out by the ESCB shall be:*

- to define and implement the monetary policy of the Community;*
- to conduct foreign exchange operations consistent with the provisions of Article 109;*
- to hold and manage the official foreign reserves of the Member States;*
- to promote the smooth operations of payment systems.*

**Article 105 (5)**

*The ESCB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.*

**Article 105 (6)**

*The Council may, acting unanimously on a proposal from the Commission and after consulting the ECB and after receiving the assent of the European Parliament, confer upon the ECB specific tasks concerning policies relating to the prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings”.*

The Treaty is explicit on the principle of decentralization and allocation of regulatory and supervisory powers to national authorities. It is only in very special circumstances, and with unanimity in the European Council, that the ECB will be allowed to regulate or supervise financial institutions.

Finally, it should be recognized that the single banking market goes beyond the fifteen members of the European Union. On May 13, 1992, the countries of the European Free Trade Association (EFTA),<sup>14</sup> with the exception of Switzerland, joined the European Economic Area (EEA). With regards to banking, this implies that the EEA countries accept the

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<sup>11</sup> The supervisory control of the subsidiary by the authorities of the country in which it is located is again confirmed in the Report on Financial Crisis Management (Economic and Financial Committee, 2001).

<sup>12</sup> Directive 88/361/EEC. The June 1988 capital directive (Article 3) provided for the temporary implementation of capital controls. In the case of large speculative movements, the Commission, after consultation with the Committee of Central Bank Governors, could authorize capital controls. In very urgent cases, a country can implement them, but only after giving prior notice to the Commission.

<sup>13</sup> 94/19/EC.

<sup>14</sup> EFTA comprises Iceland, Liechtenstein, Norway, and Switzerland. In January 1995, three EFTA countries, Austria, Finland and Sweden, became members of the European Union.

European banking legislation covering a single banking license, home country control, mutual recognition, and acceptance of the common regulations.

#### *1.1.4 The Creation of the Single Currency, 1999*

In 1989, the Committee for the Study of Economic and Monetary Union recommended, in the Delors Report, a three-phase transition spread over ten years. Its conclusions were incorporated in the 1992-Treaty on European Union. Stage I, which ran from July 1, 1990 to December 31, 1993, provided for the freedom of capital flows and the coordination of national monetary policies. Stage 2 started in July 1994, with the creation of the European Monetary Institute. One of its missions was to prepare the monetary institutions and the European System of Central Banks (ESCB). Finally, Stage 3 led to European Economic and Monetary Union (EMU)<sup>15</sup> on January 1, 1999. With irrevocably fixed exchange rates, the money and capital markets moved into the euro, while the retail market continued to operate in legacy national currency. Euro notes and coins were introduced in January 2002. An important feature of the single currency is the payment system and the clearing mechanism. The payment system is organized at the national central bank level, while large Real Time Gross Settlements (RTGS) between financial institutions flow through the ECB Target system.<sup>16</sup>

#### *1.1.5 The Financial Services Action Plan (1999-2005)*

Finally, in May 1999, the Council launched the Financial Services Action Plan (FSAP),<sup>17</sup> which consists of a large series of initiatives taken to ensure the full integration of banking and capital markets by the year 2005. The objective is to develop the legislative and non-legislative framework along four objectives: A single EU wholesale market, open and secure retail banking and insurance markets, the development of state-of-the-art prudential rules and supervision, and optimal wider conditions (essential fiscal rules) for an optimal single financial market. The 22 July 2002 FSAP Progress Report lists a series of twelve planned actions for the wholesale market objective, and five actions for the retail market objective.

### **1.2 Banking with a Single Currency**

European banking markets are not only affected by the creation of the single market, but also by the creation of the single currency. How does the single currency affect the strategies of banks and why do domestic and/or cross-border mergers become relevant strategies? In this section, and for the sake of space, three potential effects of the euro are identified and analyzed.<sup>18</sup> The quantitative impact of the euro and the single market are evaluated in Section 1.4.

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<sup>15</sup> The initial members included eleven countries. Greece joined on January 1<sup>st</sup> 2001. Denmark, Sweden, and the United Kingdom have kept open their option to join at a later date.

<sup>16</sup> As will be discussed later, the organization of the payment system at the national level constitutes a barrier to integration.

<sup>17</sup> COM (1999) 232.

<sup>18</sup> A complete analysis of the impact of the euro is available in Dermine (1996a) and Dermine and Hillion (1999).

The first impact of the euro concerns capital markets, including the government and corporate bond and equity markets. The last two effects concern commercial banking, with the impact of the single currency on credit risk, and bank profitability in a low inflation environment.

### *1.2.1 The Bond and Equity Markets, Underwriting and Trading*

Before the introduction of the euro, one observes that the capital markets in Europe were very fragmented with domestic players capturing a large market share of the underwriting and secondary trading business. This raises the question of the sources of competitive advantage for local banks.

With regard to the underwriting and trading of securities, the dominance of local firms is the result of four main factors: (a) a historical factor, with local banks having privileged relations with the local issuer (customer relations), (b) local expertise in evaluating business risk to price the issue, (c) domestic currency denomination, which facilitates the access to a large investor home base, providing a significant advantage not only in placing the issue, but also in understanding the demand/supply order flows and (d) expertise of local banks in the domestic monetary environment, which provides essential information for operations on the secondary bond market.

A single currency in Europe changes fundamentally the competitive structure of the corporate bond and equity markets, since one key-source of competitive advantage, namely home currency, disappears. Indeed, savers will diversify their portfolio across European markets, now that the exchange rate risk has been eradicated. If access to a Europe-wide investor base facilitates placement, and if access to information on the supply/demand order flows seems essential to operate on the secondary market, operations on a large scale and at a European-wide level are likely to become a necessity and one should observe a consolidation on the capital markets.

Therefore, the two main sources of comparative advantage remaining for local players will be historical customer relationship and the understanding of credit (business) risk through a better knowledge of the accounting, legal, fiscal (not to mention language) environment. Whenever the business risk embedded in corporate securities can be better assessed by domestic banks, these firms will control underwriting and secondary trading. Local expertise would be particularly valuable for smaller companies, venture capital, or the real estate market. However, for larger corporations, worldwide industry expertise and placing power at the international level will most likely dominate any national source of advantage. The replacement of national currencies by the euro thus explains consolidation in capital markets activities.

### *1.2.2 EMU and Credit Risk*

An additional impact of the euro is its potential effect on credit risk. The argument is based on the theory of Optimum Currency Areas.

The theory of Optimum Currency Areas has called attention to the fact that countries subject to asymmetric economic shocks would value monetary autonomy to lessen the effects of a shock. Indeed, with symmetric shocks, there would be a consensus among the members of a currency union on economic policy, but with asymmetric shocks, the policy run from the center may not be adequate for all the members of the Union. For instance, one can wonder whether the rapid recovery enjoyed by British banks in 1994 was helped partly by the

September 1992 devaluation, which reduced somewhat a bad debt problem. Similarly, the 42% devaluation of the Finnish Markka in the early 1990's helped the restructuring of the country after the real estate crisis and the collapse of one of its major trading partners, the Soviet Union. A case of fixed exchange rates which prevented a smooth adjustment is that of Texas. The decrease in oil prices from US\$40 a barrel in 1979 to under US\$10 in 1986, and a change in federal tax policy affected not only the oil industry, but also unemployment, real estate and the Texan banking industry (Gan, 2002). Had the Texan dollar been allowed to devalue, the severity of the recession would have been lessened. How could the introduction of a single currency affect credit risk? If a bank concentrates its credit risk in its home country, and if that country is subject to asymmetric shocks, it is quite possible that a central European monetary policy or fiscal transfers will not be able to lessen the shock. Although the likelihood of such a significant asymmetric shock could be quite low, the fact remains that any bank must control risk in such extreme, "stress", cases. An indirect corollary of the Optimum Currency Area theory is that, for banks operating in a single currency area, the need to diversify their loan portfolio increases in proportion to the likelihood of the home country being subject to asymmetric (uncorrelated) shocks. This can be achieved through an increased international diversification of the loan portfolio with cross-border lending or cross-border mergers.<sup>19</sup> Securitization and credit derivatives could help to trade credit risk, but the asymmetric information on the quality of loans will raise the cost of trading credit risk, most likely leaving a major place to international diversification of lending.

### *1.2.3 Banking in a Low Inflation Environment*

The third effect of a single currency concerns the impact on bank profitability of doing business in a low inflation environment. Indeed, in the last twenty years, inflation and relatively high interest rates in some countries have created significant interest margins on price-regulated deposits. One can safely expect that the objective of monetary stability and low inflation, pursued by an independent European Central Bank, reduces the source of profitability on the deposit funding business. However, if this effect is quite significant in a large number of countries, two additional effects of a low inflation environment might soften the impact of lower margins on deposits: margins on loans and the so-called "inflation tax".

The first impact is that a low interest rate environment usually leads to much higher margins on personal loans, because of the relative inelasticity of interest rates on personal loans. This effect is well known on the credit card markets in which margins are known to be permanently higher in a low interest rate environment. A second positive impact of a low inflation environment is that the so-called "inflation tax" will be much smaller. An inflation tax arises because banks, being net holders of financial assets, are taxed on their nominal income rather than their real income (Dermine, 1985).

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<sup>19</sup> Note that Danthine et al. (1999) offers an opposite view. Building on the 1979-1992 regional employment study by Fatas (1997), they argue that diversification of credit risk at the national level will be sufficient and that not much has to be gained by international diversification. We disagree with their conclusions for three main reasons. First, historical data might not be a good guide for the future as we move into a new single currency regime. The enlarged market could induce corporate firms to specialize, thereby increasing the level of domestic correlations. Second, the concern with credit risk is with very large (quite rare) domestic shocks that can not be mitigated by national monetary policies. The 1990 devaluation of the Finnish Markka, and the 1992 devaluation of Sterling and the lira have helped to reduce the extent of severe recessions. This policy tool does not exist under a single currency regime. Third, employment data could be a poor proxy for credit risk.

Therefore, the impact of a low inflation environment on the profitability of banks will depend on the relative importance of reduced margins on deposits, higher profit on personal loans, and on the significance of the “inflation-tax”.

### *1.3 Additional Factors of Change*

The powerful forces of change, driven by the European agenda, should not hide four additional sources of change: worldwide integration, demographics, entry of new competitors, and information technology. For reasons of space, these are discussed briefly. Rapid changes in demographics in Europe and Japan will not only produce a shift in the pattern of savings but may also generate lower economic growth. Global integration is facilitated by the World Trade Organization Accord on financial services and by financial crises which have forced the opening of banking markets in Asia, Central and Eastern Europe, and Latin America.<sup>20</sup> In some countries, new competitors, such as credit card specialists and supermarkets, have succeeded entering the banking market. Finally, progress in information technology, with the ability to transfer rapidly very large amounts of data, as well as the processing capability, are transforming the distribution mechanisms in banking (Vesala, 2000).

### *1.4 Impact of the Single Market and the Euro*

Two main types of changes will be discussed: those induced by deregulation, and those induced by European-wide integration. The impact on consolidation and bank mergers is analyzed separately in Section 3.

#### *1.4.1 Deregulation*

The picture of European banking markets in the early 1980s that emerges from this review of regulatory and economic development is one of severe fragmentation. Although national treatment applied with a freedom of establishment recognized by the 1973 directive, capital controls in many countries (with the exception of the United Kingdom, Germany, and the Benelux countries), and the threat of potential capital controls (European Commission, 1988a) severely limited crossborder trade in banking activities. Moreover, in the early 1980s, the banking sector of most countries was very much repressed with a large set of regulations constraining its activities. Exceptions included Germany, the United Kingdom, the Netherlands and Luxembourg. The list of regulations reported in Table 1 includes:

- Control of interest rates,
- Capital controls,
- Stock exchange membership,
- Branch restrictions,
- Foreign bank entry,
- Credit ceilings,
- Mandatory investment requirements,
- Restrictions on insurance.

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<sup>20</sup> Focarelli and Pozzolo (2002) argue that economic growth is one of the major levers of cross-border banking.

Table 1: Banking regulations in 1980

	B	DE	DK	E	F	GR	I	IRL	L	NL	P	UK
Control of interest rates	•	•	•	•	•	•	•	•	•		•	
Capital controls	•		•	•	•	•	•	•			•	
Stock exchange membership			•	•	•		•				•	•
Branch restrictions					•		•				•	
Foreign bank entry				•		•	•				•	
Credit ceilings			•	•	•	•	•				•	
Mandatory invst requirements				•	•	•				•	•	
Restrictions on insurance		•	•	•	•	•				•	•	
Leasing				•		•					•	

Source: Bingham (1985), Emerson (1988), Bröker (1989), and European Commission (1997).

In addition, reserve requirements, reported in Table 2, were put in place to facilitate monetary policy and/or to finance public deficits. They were quite onerous in several countries, such as Germany, Italy, and Portugal. The money markets were underdeveloped. As Table 3 indicates, the creation of the Certificate of Deposits and Commercial Paper markets took place in the 1980s.

Table 2: Minimum reserve requirements in selected countries in 1990

Country	Reserve ratio
Belgium	0%
Denmark	0%
France	5.5% on checking account 3% on savings & time deposits
Germany	12.1% on checking accounts 4.15% on time deposits 4.95% on savings deposits
Italy	22.5%
Luxembourg	0%
Netherlands	0%
Portugal	17%
Spain	5%
United Kingdom	0.45% (not used for monetary policy)

Source: Neven-Gual (1993). In 2002, a 2% reserve coefficient is applied on short-term deposits (less than a year) of banks from the euro zone. These reserves are remunerated at the short-term market rate.

Table 3: Introduction of negotiable money market instruments in selected countries, 1981-1987

Country	Instruments <sup>1)</sup>
Finland	CD, TB, CP
France	CD, CP, TB
Greece	TB
Italy	CD
Netherlands	CD, CP
Portugal	TB, CD
Spain	TB, CP
Sweden	TB, CP
United Kingdom	US dollar-denominated CP

Source: Bröker, 1989.

1) Certificate of Deposits (CD), Treasury Bill (TB), Commercial Paper (CP)

Twenty years later, a level playing field was created, with a regulatory convergence towards a minimum set of regulations, on banking license, capital, and large exposure limits. The ending of “repressed” banking systems is, most likely, one of the major contributors of the single market program. The conjecture of analysts (e.g., Neven, 1993), according to whom the main benefit of the single market was to launch a process of competitive deregulation among national regulatory agencies using their power to help their banking industry, was fully supported by facts. Anecdotal, but quite to the point, was the change in German law in 1990 to allow the creation of financial futures markets in Germany to compete with the successful *bund* futures contract traded on the London International Financial Futures Exchange (LIFFE).<sup>21</sup> This period of massive deregulation led to an exceptional expansion of the banking systems. In Table 4, we report the ratio of banking assets to GNP in 1981 and 2000, as well as the number of bank employees.<sup>22</sup> In most countries, this ratio has doubled over the past twenty years, with an almost constant workforce.<sup>23</sup> A notable exception is Finland with a 27% reduction in the number of employees after the early 1990’s banking crisis.

<sup>21</sup> The market shares of the German government bond contract traded on LIFFE and Deutsche Terminbörse (DTB) were converging by 1997 (Steinherr, 1999).

<sup>22</sup> Detailed data on national banking systems countries are found in the Appendix.

<sup>23</sup> One could wonder whether the growth of a banking sector is healthy at a time when the development of a market-based system is being encouraged. Beck and Levine (2002) find evidence for neither the market-based nor the bank-based hypothesis. Legal efficiency and overall financial development appear to boost industry growth.

Table 4: Size of banking sectors

Country	1981	2000
<b>Belgium</b>		
Banking assets/GNP (%)	112	313
Bank employees (000)	66	76
<b>Denmark</b>		
Banking assets/GNP (%)	56	176
Bank employees (000)	NA	NA
<b>Finland</b>		
Banking assets/GNP (%)	60	86
Bank employees (000)	33	24
<b>France</b>		
Banking assets/GNP (%)	76	265
Bank employees (000)	NA	394
<b>Italy</b>		
Banking assets/GNP (%)	116 (1985)	127
Bank employees (000)	315	311
<b>Germany</b>		
Banking assets/GNP (%)	103	235
Bank employees (000)	501	723
<b>Netherlands</b>		
Banking assets/GNP (%)	98	216
Bank employees (000)	92	129
<b>Spain</b>		
Banking assets/GNP (%)	101	151
Bank employees (000)	252	248
<b>Sweden</b>		
Banking assets/GNP (%)	107	184
Bank employees (000)	NA	NA
<b>United Kingdom</b>		
Banking assets/GNP (%)	100	239
Bank employees (000)	NA	409

Source: Country data reported in the Appendix.  
NA = not available.

### *1.4.2 European Integration*

Having observed the significant impact of the single market program on deregulation, we now turn to its impact on the degree of European integration of banking markets. Here one should be careful to distinguish the retail markets, including personal and small and medium size enterprises, from the market for large corporate firms and public entities. Three dimensions of international integration can be analyzed: a) the law of one price, b) the amount of cross-border business, and c) the amount of foreign direct investment and market shares of foreign firms. These three dimensions are analysed successively. A specific analysis of the degree of integration of wholesale banking markets follows.

## a) The Law of One Price on the Retail Banking Markets

In the context of the single market program, the European Commission published the Cecchini report on the costs of non-Europe (European Commission, 1988b, Emerson, 1988). In an attempt to estimate the consumer gains to be expected from the single market, the authors reported the potential price falls in several banking products by comparing the current price to the average of the lowest four observations. Table 5 reports the significant price

Table 5: Potential falls in financial product prices as a result of completing the internal market  
(in %)

	Belgium	Germany	Spain	France	Italy	Luxembourg	Netherlands	UK
Commercial loans	-4.6	6.0	19.2	-7.3	8.6	6.0	43.0	45.7
Consumer credit	-41.0	135.9	38.5	105.1	121.0	-26.9	30.8	121.5
Credit card	79.0	60.0	25.7	-29.5	88.6	-12.4	42.9	16.2
Mortgages	31.3	57.3	118.8	78.5	-4.3	36.5	-6.3	-20.7
Letters of credit	21.8	-10.0	58.9	-7.2	9.1	27.1	16.5	8.1
Foreign exchange draft	6.2	30.9	196.3	55.6	23.5	33.3	-45.7	16.1
Travellers' checks	35.2	-7.4	29.6	38.9	22.2	-7.4	33.3	-7.4

Source: European Commission (1988b).

Methodology: A price is compared to the average of the four lowest prices observed in countries of the European Union.

changes expected from this study. The implicit assumption is that the retail banking product is a homogeneous service traded in a perfect market, so that cross-border competition will drive away price differentials. The law of one price is presumed to hold. However, several authors have pointed out that banking services are unlikely to meet the traded "homogeneous" product definition (e.g., Geroski and Szymanski, 1993). Four reasons justify this:

First, there is the issue of trust and confidence. When you deposit your entire savings of a lifetime, you want to ensure that they are in safe hands. If there is an error or a fraud in a transaction, you want to access an easy mechanism for redress. Knowledge of the bank, proximity, and national legal system will de facto create differentiated banking products.

Second, it has been observed that retail customers buy a package of financial services from the bank providing the payment service (McKay, 1998, and Competition Commission, 2002). If, for convenience, customers buy a bundle of financial services, the law of one price would hold for the bundle of services, not necessarily for each component. Moreover as mentioned earlier, since the payment clearing is done at the national level, a domestic bank will have a competitive advantage, particularly in the handling of checks.

Third, asymmetric information in lending is quite important (Diamond, 1984, Rajan, 1998, or Bolton and Freixas, 2000). In many cases, local knowledge can help to reduce this information asymmetry.<sup>24</sup>

Fourth, and not specific to banking, the law of one price assumes the absence of transportation costs and regulatory barriers. If these are significant, the services will belong to the non-traded goods category (such as hairdressing and medical services). The law of one price would apply at the domestic level only.

<sup>24</sup> Padilla and Pagano (1997) make the point that information sharing with credit bureaux partly reduces this asymmetry.

These four arguments help to understand the extent of switching costs and why the law of one price is unlikely to hold in retail banking. Switching costs can explain a relatively low price elasticity, the absence of price competition on some markets, and the persistence of profit. Ausubel (1991) reports strong evidence of profit persistence in the US credit card markets, while a similar concern is expressed for the SME markets (Berger et al. (2000d) for the United States, Cruickshank (2000) and the Competition Commission (2002) for the United Kingdom, and the CPB Bureau for Economic Policy Analysis for the Netherlands (Canoy et al., 2001).

Progress in information technology has reduced transportation costs (Vesala, 2000), but the three other factors remain. This explains, why so far stand-alone e-banking has a very minimal impact on commercial banking competition<sup>25</sup> and why the standard seems to be the multi-channel distribution route with a combination of telephone, electronic and branch proximity (Cabral, 2002). To improve on the issue of trust, the European Commission published in 2001 a Communication on e-Commerce and Financial Services<sup>26</sup> to complement the general Directive on a legal framework for e-commerce.<sup>27</sup> This approach is based on the principle that the trading rules applied to cross-border sales and the purchase of financial services should be those of the member state where the service provider is established (i.e. “place of establishment”). However, there are several exceptions to this principle, particularly with regard to the sale of investment funds and insurance for which the host country competence prevails. The Commission has been working to further harmonize these marketing rules (on, for example, “cold calling”, unsolicited phone calls, and the provision of information about products and services) and has launched a European Union-wide network of financial services complaints bodies (ombudsmen) called FIN-NET that can provide cheap and effective cross-border redress, thus avoiding the need to seek recourse in court.<sup>28</sup> The communication indicates that much more work remains to be done to make the delivery of products on the Internet a level playing field. Note that if cross-border Internet banking does succeed, the law of one price will be even less valid. Varian (2001) predicts that the information available will allow the pricing and differentiating of products to each client.

Four sources of evidence document the claim that the law of one price does not hold in the retail market: the results of the 1997 Single Market Review, pricing of cross-border transfers, fees on money market funds in France, and interest margins on deposits.

### Single Market Review

The authors of the Single Market Review (European Commission, 1997), relying both on questions from postal and Eurostat surveys and comparisons of margins on loans and deposits, concluded that the retail banking markets are segmented, and, in contrast to the prediction of the Cecchini report, they observed little convergence of prices.

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<sup>25</sup> The impact on share brokerage is a notable exception.

<sup>26</sup> COMM (2001).

<sup>27</sup> 2000/31/EC.

<sup>28</sup> FIN-NET: The Cross-border Out-of-Court Complaints Network for Financial Services (FIN-NET, 2002).

### The Costs of Cross-Border Transfers

One good example that the law of one price does not hold concerns the charges on cross-country transfers. At the end of 1999, the Commission conducted a study on the charges for standard cross-border transfers of €100. The results, compared to those of a similar study undertaken in 1993, are reported in Table 6. There were wide variations, not only across countries, but also within countries. The cost of a transfer from France to Belgium, for instance, could vary from €5.52 to €28.28, and the cheapest rate was from Luxembourg to France (€1.98), compared to a cost of €46.76 from Italy to Austria. Finally, payees were charged fees in 25% of cases in breach of the 1999 directive on cross-border credit transfers. Over the years 1993-2000, one observes a fifty percent price reduction in some countries but virtually no change in others. Frustrated with the little progress observed in the reduction of price differentials between domestic and international payments, the Commission introduced in 2001 a regulation on cross-border payments in Euros.<sup>29</sup> This price regulation applies the principle of equal charges for electronic payment transactions, whether they are within-border or cross-border.

Table 6: Charges on cross-border payments

Issuing country	Average charges (€)		Total charges (€)	
	of payer (2000)	to payee (2000)	2000	1993
Luxembourg	8.15	0.76	8.91	15.75
Netherlands	8.68	1.32	10.00	18.80
Austria	9.56	1.05	10.61	NA
Belgium	13.37	0.00	13.37	23.06
Germany	13.39	0.39	13.78	26.16
France	15.36	1.52	16.88	33.01
Italy	16.10	2.18	18.28	20.88
Finland	19.77	0.34	20.11	NA
Spain	15.48	5.02	20.50	22.04
Ireland	25.61	0.37	25.98	27.13
Portugal	25.13	4.55	29.68	26.75
Average	15.51	1.59	NA	17.10

Source: European Commission (1997, 2000). NA = not available.

Methodology: The charge is applied to a standard cross-border transfer of euro 100.

### Money Market Funds in France

Even within a country, the law of one price may not hold. We report in Table 7 the management fee charged on French money market funds, a product that could be qualified as homogeneous with very minimal risk. Traded on the stock markets, they are in principle accessible to any investor. At the end of 2001, there were 396 funds on offer in France, varying in size from €1.2 million to €16.5 billion. The range of management fees varied from 8 basis points to 200 basis points (bp) with an average of 68 bp. Similar data from a 1989 study (Dermine and Röller, 1992) indicate that the range of management fees has not been reduced in the last ten years, and that the average management fee has increased from 50bp to 68bp.

<sup>29</sup> Regulation EC 2560/2001.

Table 7: Management fees on French money market funds, 1989-2002

	Assets (EUR million)				Management Fee (% of assets)			
	Mean	Median	Small	Largest	Mean	Median	Small	Largest
1987	743	NA	30	12,270	0.5	NA	0.05	1
2001	841	218	1.2	16,473	0.68	0.5	0.08	2

Source: Dermine-Röller (1992), Micropal. NA = not available.

### Interest Margins on Deposits

In Table 8, we report interest margin on savings deposits observed for six countries in 2000. Calculated on the basis of a common euro money market rate of 3.34%, the margins ranged from a low of 0.75% in Belgium to a high of 2.37% in Spain. While the range is clearly not indicative of the law of one price, one observes a convergence of margins on savings deposits over the period 1980-2000. However, as will be argued later, this is mostly driven by the convergence of money market rates to a low interest rate level in the euro zone, rather than by international competition and the law of one price.

Table 8: Intermediation margin,<sup>1)</sup> 1980-2000  
(in %)

Country	1980	1985	1990	1995	2000
<b>Belgium</b>					
Treasury-Bill	14.40	10.70	10.40	5.36	3.34
Margin on Savings Deposits	9.40	5.70	4.90	0.72	0.75
Margin on Consumer Loans	NA	NA	NA	6.92	3.63
Retail Intermediation Margin	NA	NA	NA	7.64	4.38
Margin on Corporate Loans	0.80	1.04	1.05	1.15	1.14
<b>Netherlands</b>					
Treasury-Bill	9.20	6.85	8.13	5.18	3.34
Margin on Savings Deposits	4.20	3.50	5.63	3.13	1.84
Margin on Consumer Loans	5.30	1.65	3.62	2.32	2.91
Retail Intermediation Margin	9.50	5.15	9.25	5.45	4.75
Margin on Corporate Loans	3.05	-0.60	1.12	-0.18	0.41
<b>Finland</b>					
Treasury-Bill	13.80	12.80	16.05	5.85	3.34
Margin on Savings Deposits	9.55	7.55	11.55	3.85	1.84
Margin on Consumer Loans	-3.64	-1.10	-0.45	4.09	2.75
Retail Intermediation Margin	5.91	6.45	11.10	7.94	4.59
Margin on Corporate Loans	-3.64	-1.10	-1.29	1.58	0.89

Source: ECB, OECD, Banca de Espana, Bank of Finland. NA = not available.

1) Methodology:

Margin on savings deposits: treasury bill rate - rate paid on savings deposits

Margin on consumer loans: rate charged on loan - treasury bill rate

Retail intermediation margin: rate charged on consumer loans - rate paid on savings deposits

Margin on corporate loans: rate charged on loans - treasury bill rate

Table 8 cont'd: Intermediation margin,<sup>1)</sup> 1980-2000*(in %)*

<b>Country</b>	<b>1980</b>	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>
<b>France</b>					
Treasury-Bill	12.20	9.50	10.00	5.00	3.34
Margin on Savings Deposits	5.30	3.00	5.60	0.66	0.92
Margin on Consumer Loans	NA	NA	5.40	3.03	4.85
Retail Intermediation Margin	NA	NA	11.00	3.69	5.77
Margin on Corporate Loans	NA	3.83	1.19	2.28	1.75
<b>Germany</b>					
Treasury-Bill	8.86	5.87	8.30	5.16	3.34
Margin on Savings Deposits	NA	NA	2.08	1.37	1.31
Margin on Consumer Loans	NA	NA	4.32	8.18	6.84
Retail Intermediation Margin	NA	NA	6.40	9.55	8.15
Margin on Corporate Loans	0.80	2.39	1.31	4.16	4.34
<b>Spain</b>					
Treasury-Bill	12.20	12.00	14.00	8.33	3.34
Margin on Savings Deposits	8.45	8.25	11.58	5.58	2.37
Margin on Consumer Loans	2.57	5.03	3.18	5.62	4.67
Retail Intermediation Margin	11.02	13.28	14.76	11.20	7.04
Margin on Corporate Loans	-3.64	-1.10	-1.29	1.58	0.89

Source: ECB, OECD, Banco de Espana, Bank of Finland. NA = not available.

## 1) Methodology:

Margin on savings deposits: treasury bill rate - rate paid on savings deposits

Margin on consumer loans: rate charged on loan - treasury bill rate

Retail intermediation margin: rate charged on consumer loans - rate paid on savings deposits

Margin on corporate loans: rate charged on loans - treasury bill rate

### b) Cross-Border Banking Business

In addition to the law of one price, one can look at a second indicator of market integration, the flows of cross-border banking business. Data reported in the country tables at the end of the paper concerns the cross-border deposits or lending to non-financial institutions. Unfortunately, these data do not discriminate between the retail and corporate segments. In the ten-year period 1990-2000, one observes a significant (often twofold) increase in Belgium, Denmark, Finland, Italy, Germany, and Spain. One can guess that this trend is driven mostly by the large corporate sector. Although cross-border banking still represents a small percentage of total assets (often less than ten percent), the trend is encouraging. A third dimension of an integrated market is the crossborder investment and the market share of foreign banks in a particular country.

### c) Market Share of Foreign Banks

If some financial services are non-tradable for the reasons mentioned earlier, European integration through cross-border investment could bring competition and efficiency. As a complete discussion of Mergers and Acquisitions (M&As) is conducted in Section 3, we report in Table 9 the market share achieved by foreign banks in some markets. These vary from high figures in the small countries of Luxembourg and Belgium (respectively, 94.6% and 36.3%) to low figures in France, Italy, and Germany (9.8%, 6.8% and 4.3%, respectively). The trend is encouraging in Italy and Germany, but negative in countries like the Netherlands and France. So, although a large number of cross-border M&As are reported in Section 3, many of them must have concerned small firms, as they do not change the market share of foreign banks in a significant way.

Table 9: Market share of foreign banks in 1999  
(% of total assets)

	From EEA countries		From third countries		Total		
	Branches	Subsidiaries	Branches	Subsidiaries	1999	1988	1983
Austria	0.7	1.6	0.1	1.0	3.3	NA	NA
Belgium	9.0	19.2	6.9	1.2	36.3	35.2	33.9
Finland	7.1	0.0	0.0	0.0	7.1	NA	NA
France	2.5	NA	2.7	NA	9.8	13.5	10.1
Germany	0.9	1.4	0.7	1.2	4.3	1.8	1.0
Ireland	17.7	27.8	1.2	6.9	53.6	21.4	27.0
Italy	3.6	1.7	1.4	0.1	6.8	3.0	2.6
Luxembourg	19.4	65.7	1.4	8.1	94.6	91.0	NA
Netherlands	2.3	3.0	0.5	1.9	7.7	13.0	10.7
Portugal	2.5	6.8	0.1	1.0	10.5	4.2	NA
Spain	4.8	3.4	1.6	1.9	11.7	11.0	7.3

Source: European Commission (1997), Belaisch et al. (2001). NA = not available.

Twenty years into the creation of a single banking market, the picture that emerges is still one of fragmented retail markets with low market share of foreign institutions in most national markets, and a relatively low, but growing, amount of cross-border activity. Although market segment data are not readily available, one can guess that the foreign penetration must concern market niche and corporate banking, still with very limited impact on retail banking (personal and medium-size companies). This is consistent with a retail market fragmented by issues of trust, asymmetric information, and/or transportation costs. Recent studies allow one to analyze the degree of integration of wholesale banking markets.

### Integration of Large Corporate and Wholesale Banking Markets

Given that asymmetric information is less of an issue with large corporate firms and that the size of transactions will reduce the relevance of switching costs, one would expect, *a priori*, that the banking market for large corporate and financial firms would be much more integrated. Four specific pieces of empirical evidence concern the segmentation of the market for bond issue, loans, cash management products, and the euro money market.

Using an International Financing Review (IFR) database over the years 1993-1996 for the issue of 6,517 corporate bonds and loans, Harm (2001) estimates a logit regression to determine the probability that a debt issue is led by a bank of a specific country. He observes that currency denomination is a key factor for bond issue, confirming the impact of national currency on placing power and the competitive advantage of local banks. He also observes a significant impact of the nationality of the borrower for syndicated loans, a confirmation of the importance of customer relations. Santos and Tsatsaronis (2002) analyze the early impact of the arrival of the euro with the 1994-2001 IFR database. They not only confirm the earlier findings that 80.5% of the issues were underwritten by banks from a country with the same currency denomination, but that this figure sharply decreased to 59.5% in the post-EMU 1999-2001 period. Moreover, they report that the average fee has decreased from 1.6% to 0.77% in the post-EMU period. Bishop (2001) reports that issues of more than €1 billion increased from 14 percent to 48 percent of all euro-denominated issues from the first quarter of 1998 to the first quarter of 2001. Driven by much greater market liquidity, Belgium came up with a €5 billion issue in 2002. This confirms the need for larger banks with a bigger capital base to absorb the risk of an issue.

In a related study, Berger, Dai, Ongena and Smith (2002) examine the 1996 choice of banks by 2000 foreign affiliates of multinational corporations in 20 European nations for cash management services.<sup>30</sup> They report that two-thirds of the sample choose a bank headquartered in the host nation. They conclude that their finding indicates a limit to globalization. In our view, this is not necessarily the case. It is consistent with the view of the non-traded goods aspect and the need for a national geographical coverage to ensure the handling of checks and other means of payments. As foreign banks still have a small coverage in most European countries, they are not well placed to offer a cash management service.<sup>31</sup> The absence of cross-border trade does not preclude a second form of integration, that of foreign direct investment and cross-border mergers taking place to provide a more efficient bank.

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<sup>30</sup> Cash management services include liquidity management, check clearing, factoring, A/R management, short-term lending, Forex, and hedging.

<sup>31</sup> This explains why some banks have gone down the alliance road to offer a crossborder cash management service. For instance, the Inter Bank On-Line System (IBOS), an alliance of 18 banks (13 from Europe, 4 from North-America and 1 from South-Africa) offers an international cash management service to multinational corporations by pulling together the national branch network of its members.

Finally with regard to the euro money market, not only the creation of the single currency but also TARGET, the efficient cross-border real time gross settlement system, has, as expected, created a large integrated money markets. For instance, the market for inter-bank deposits shows virtually complete convergence in very short-term interest rates (Hartmann et al., 2001, and Economic and Financial Committee, 2002).

It must be reported that the above evidence on integration in the retail or wholesale banking markets is fairly similar to the results of the study conducted at the University of Salerno (Adam et al. 2002). Borrowing from the economic growth literature, the authors report two measures of convergence. Applied to various parameters such as interest rates or margins, the  $\sigma$ -convergence measures how countries deviate from the benchmark, while the  $\beta$ -convergence measures the speed of adjustment to the long-run benchmark value. They confirm the rapid integration of the wholesale capital market, but the absence of integration on the loan market.

So the picture that emerges is one of a fully integrated market for corporate/investment banking services and a fragmented retail market created, in part, by asymmetric information and the existence of significant switching costs. The European banking legislation has attempted to eliminate the remaining barriers to an integrated banking market, and the single banking license has been created to reduce the regulatory costs involved in operating in different countries. In the next section, we evaluate whether these objectives of European legislation have been met entirely.

## **2. Single Banking License, Single Home Country Regulator, Single Bankruptcy Proceedings: A Great Illusion?**

As reviewed in Section 1, the grand vision of the single European market was to push the boundaries of each country in order to create the equivalent of an enlarged EU-wide national market. One banking license would be needed, one home country regulator would supervise, one home country deposit insurer would insure the deposits raised throughout the European Union, and single bankruptcy proceedings would apply. The intention was to decrease the regulatory costs, to facilitate entry into foreign countries, to increase competition, and to facilitate legal proceedings in the event of a wind-up of an international bank. However, to be allowed to go freely crossborder, a bank would need to operate within one corporate structure and a series of branches. If it were operating with subsidiaries, the European passport would not apply, as subsidiaries are considered as domestic banks in each country.

A striking feature of the process of cross-border European banking is that it often takes place via subsidiaries, not branches. In Table 10, we report the number of branches and subsidiaries established in each EEA country. In total, there were 450 branches and 363 subsidiaries for banks from EEA countries, while the order was reversed for banks from non-EEA countries, i.e., 312 branches and 372 subsidiaries. More significant for the purpose of this study, is the fact that cross-border mergers involving banks of significant size have all resulted in holding company structures with subsidiaries. This is, at first glance, a very surprising outcome of the single banking market, as it would have seemed that a single corporate bank structure would have reduced the regulatory costs significantly. Is the single banking license an illusion?<sup>32</sup>

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<sup>32</sup> Banking theorists also appear victims of this illusion. Repullo (2001) wrote a paper on the welfare and regulatory implications of cross-border banking with branches (but, to be fair, recognized the need to extend the model to cross-border banking with subsidiaries), and Holthausen and Ronde (2001) analyze the incentives for information-sharing between host and home authorities in a branch-based system.

Table 10: Number of foreign branches and subsidiaries  
 (% market share of domestic assets)

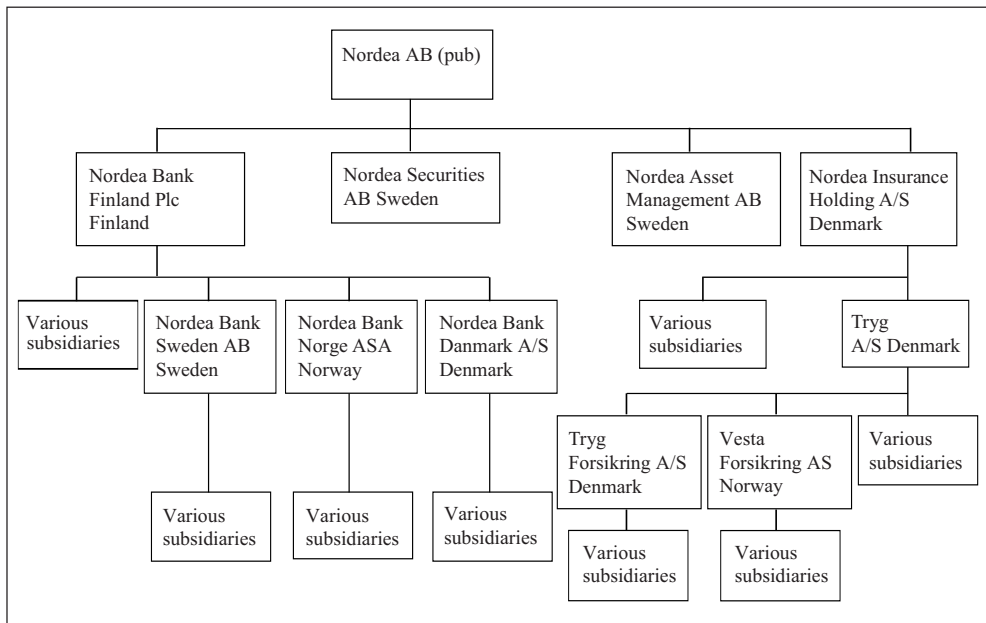
Country		EEA	Third Countries	Total
<b>Austria</b>	# branches	6 (0.7)	2 (0.1)	8 (0.8)
	# subsidiaries	20 (1.6)	11 (1.0)	31 (2.6)
<b>Belgium</b>	# branches	25 (9.0)	15 (6.9)	40 (15.9)
	# subsidiaries	16 (19.2)	15 (1.2)	31 (20.4)
<b>Denmark</b>	# branches	14 (NA)	NA (NA)	14 (NA)
	# subsidiaries	NA (NA)	NA (NA)	NA (NA)
<b>Finland</b>	# branches	9 (7.1)	0 (0.0)	9 (7.1)
	# subsidiaries	NA (NA)	NA (NA)	NA (NA)
<b>France</b>	# branches	46 (NA)	43 (NA)	89 (NA)
	# subsidiaries	118 (NA)	98 (NA)	216 (NA)
<b>Germany</b>	# branches	46 (0.9)	31 (0.7)	77 (1.6)
	# subsidiaries	31 (1.4)	45 (1.2)	76 (2.6)
<b>Greece</b>	# branches	14 (11.1)	9 (7.9)	23 (19.0)
	# subsidiaries	3 (1.8)	3 (1.0)	6 (2.8)
<b>Ireland</b>	# branches	18 (17.7)	3 (1.2)	21 (19.9)
	# subsidiaries	21 (27.8)	7 (6.9)	28 (34.7)
<b>Italy</b>	# branches	36 (3.6)	17 (1.4)	53 (5.0)
	# subsidiaries	4 (1.7)	4 (0.1)	8 (1.8)
<b>Luxembourg</b>	# branches	61 (19.4)	7 (1.4)	68 (20.8)
	# subsidiaries	97 (71.1)	46 (8.1)	143 (79.2)
<b>Netherlands</b>	# branches	11 (2.3)	11 (0.5)	22 (2.8)
	# subsidiaries	8 (3.0)	19 (1.9)	27 (4.9)
<b>Portugal</b>	# branches	11 (2.5)	2 (0.1)	13 (2.6)
	# subsidiaries	6 (6.8)	3 (1.0)	9 (7.8)
<b>Spain</b>	# branches	33 (4.8)	20 (1.6)	53 (6.4)
	# subsidiaries	21 (3.4)	6 (1.9)	27 (5.3)
<b>Sweden</b>	# branches	14 (1.3)	3 (0.1)	17 (1.4)
	# subsidiaries	0 (NA)	1 (0.2)	1 (0.2)
<b>United Kingdom</b>	# branches	106 (22.5)	149 (23.0)	255 (45.5)
	# subsidiaries	18 (1.0)	114 (5.6)	132 (6.6)
<b>total</b>	# branches	450	312	762
	# subsidiaries	363	372	735

Source: ECB 1999. NA = not available.

To gain insights into the corporate structure issue, we first present three major cases of cross-border banking in the European Union: Nordea AB, ING Group, and HypoVereinsbank (HVB). We then seek to explain the choice of a corporate subsidiary structure. Insights are gleaned from the corporate finance literature, the international business literature, and interviews conducted in two of these banks. Not only do these cases help to understand the effective barriers to a truly single European banking market, but they also raise significant public policy issues as to why and how the choice of corporate structures matter.

Nordea AB is the result of the merger of four leading banks in Finland (Merita), Sweden (Nordbanken), Denmark (Unidanmark) and Norway (Christiania Bank).<sup>33</sup> The group holds significant bank market shares in Nordic countries: 40 percent of banking assets in Finland, 25 per cent in Denmark, 20 per cent in Sweden, and 15 percent in Norway. The group structure, adopted in 2001, is described in Table 11. A listed holding company, Nordea AB, based in Stockholm, is the owner of banking subsidiaries operating in Scandinavia.

Table 11: Nordea AB, group structure



Source: Nordea AB.

The ING Group originated in 1990 from the merger between the Dutch insurer Nationale Nederlanden and the bank NMB Postbank Groep. Since the merger, ING has experienced a decade of rapid expansion. Notable acquisitions on the banking side include the British merchant bank Barings in 1995, the Belgian bank Brussels Lambert in 1998, the German BHF-Bank in 1999, and the Polish bank Slaski in 2001. Cross-border acquisitions have also been made on the insurance side. A Form 20-F report, submitted to the US Securities and Exchange Commission in 2001, lists 56 subsidiaries as part of the banking operations of ING Group.

HypoVereinsbank (HVB) is the second-largest private bank in Germany. The “Bank of the Regions in Europe”, it has major activities in Austria through its subsidiaries, Bank of Austria and Creditanstalt (merged in 2002 into Bank Austria Creditanstalt AG) and several subsidiaries in Central and Eastern Europe.

<sup>33</sup> Nordbanken and Merita merged in 1997 to create MeritaNordbanken. In March 2000, this group merged with Unidanmark. In October 2000, the Norwegian Government Bank Investment Fund decided to sell its shares in Christiania Bank og Kreditkasse to MeritaNordbanken.

The corporate finance literature helps to understand the nature of imperfections, which can lead to the creation of subsidiary structures. In a world with no transaction costs, corporate structures would not matter. However, conflicts of interest (agency problems) can arise between several parties: bank shareholders, depositors, deposit insurers, borrowers, and bank managers. Imperfect asymmetric information between parties, the monitoring costs, and complexity make it impossible to draw up complete contracts for each state of the world. This has raised interest in financial contracting (reviewed in Hart, 2001). Although very much applied to the debt vs equity financial structure issue, it has also been applied to the choice of corporate structure. Applications include, for instance, the use of project finance (Brealey and Cooper, 1996; Esty, 1999), loan securitization (James, 1988), the use of bank subsidiary structures with bad loans housed in a “bad bank” (Kahn and Winton, 2000), and the public listing of subsidiaries (Habib et al., 1997).

Developing on Esty (1999), it appears that incentive distortions can fall into one of the following four categories: overinvestment in negative NPV project (known as free cash flows conflicts or cross-subsidization), investment in a high-risk NPV project (risk shifting), underinvestment in a positive (even riskless) NPV project (the debt overhang<sup>34</sup>), and underinvestment in a risky positive NPV project due to managerial risk aversions. Leaving aside the debt overhang (an issue for distress companies and/or countries), the general corporate issue of overinvestment (free cash flows, cross-subsidy, or low managerial effort), and managerial risk aversion, it appears that the issue of risk shifting is an important one in banking. The well-known moral hazard argument states that due to limited liability of shareholders and asymmetric information between insiders and outsiders (opacity), shareholders can expropriate debt holders or deposit insurers by increasing the riskiness of assets (risk shifting).

A subsidiary structure for a bank could make sense for three reasons. First, it would reduce the dilution cost of outside finance if the financiers did not have to worry about risk shifting in a far away and “opaque” subsidiary. Kahn and Winton (2000) argue that the problem of risk shifting is particularly acute when two entities have very different degrees of risk. The creation of a corporate subsidiary helps to insulate a business from other sources of risk.<sup>35</sup> In the context of the four Nordic banks, it would seem that this situation is unlikely to be validated. Second, a subsidiary structure could help to exploit the put option created by deposit insurance. In a single corporate entity, there would be some form of co-insurance between the results of the four national entities so that the probability of default states would be low (with a lower expected payout by the deposit insurer). With separate corporate subsidiaries, the probability of states in which one of the subsidiaries might default would be higher.<sup>36</sup> Of course, one could argue that, in order to protect its reputation, the holding company would not let its subsidiaries default. The argument is certainly a valid one, but one cannot rule out cases in which the cost of bailing out a subsidiary would be greater than the loss of reputation.<sup>37</sup> A third reason for a subsidiary structure is that it allows a separate public

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<sup>34</sup> There can be underinvestment when the net present value benefit of a project cannot accrue fully to shareholders, being shared with the existing debtholders.

<sup>35</sup> Risk insulation is sometimes referred to as “ring fencing”. This explains why Spanish banks operate with subsidiaries in Latin America. This protects the debt-holders and the deposit insurer of the home Spanish bank. Other cases of “ring fencing” include the separation of banks and insurance companies with subsidiaries.

<sup>36</sup> In the option pricing literature, in which deposit insurance is viewed as a put option (Merton, 1977), a portfolio of put options on a series of assets is worth more than one put on the sum of the assets.

<sup>37</sup> Two banks decided in 2002 not to bail out their distressed subsidiaries in Argentina: the Canadian Bank of Nova Scotia with its subsidiary Quilmes, and the French Credit Agricole with its three banks, Banco Bisel, Banco Sugia, and Banco de Entre Rios (FT May 21, 2002).

listing which can solve asymmetric information problems between uninformed investors, informed investors, and managers of the firm. The increase in the number of traded securities make the price system more informative (Habib et al., 1997). To summarize, the corporate finance literature shows that corporate structure, branches vs. subsidiaries, matters when the problem of risk-shifting can harm debt-holders or deposit insurers in cases of non-sensitive insurance premia. The public policy issues raised by the existence of subsidiary structures are discussed in Section 4.

The international management literature (e.g. Rangan, 2000) gives additional reasons why cross-border mergers of equals can lead to a subsidiary structure, at least in the early years of the joint entity. The first argument is that a subsidiary structure can help to break managerial resistance to a merger. By committing to keep in place a local structure, the staff members of both entities are reassured. This argument is of a short-term nature and should disappear after a few years. The second argument is that international firms must balance the benefits of economies of scale with proximity. Proximity is facilitated by subsidiaries. As a local corporate firm and as a member of the local bankers' association, a company can influence its environment better. A second benefit of proximity is that clients and suppliers can sue the distressed firm under local laws. A third benefit is decentralization and assessment of the local corporate subsidiary on its own merit.<sup>38</sup> So, irrespective of the existence of a single market, the international management literature predicts that international firms will operate with a mix of branches and subsidiaries to optimize the proximity/scale trade off.

The third source of insights are the interviews conducted at ING Group and Nordea AB.<sup>39</sup> Both banks explain that, in principle, a single corporate entity will facilitate the exploitation of economies of scale. This is why, in the structure of Nordea AB, for instance, the asset management and securities business are put into cross-border structures with branches. The motivation to keep a subsidiary structure for banks is driven by eight arguments. The first four are of a temporary nature, likely to disappear over time. The others are more permanent.

A first argument in favor of the subsidiary structure at the time of the merger is to keep "business as usual" and not to change the brand. This has a short-term timespan as both banking groups, Nordea and ING, are busy building their own brands. A second argument is one of reassurance of the local management that key-functions will not be transferred. The reassurance of shareholders so as to get their approval is the third argument. MeritaNordbanken started with a dual listing in Stockholm and Helsinki. A dual structure reassures shareholders, as it gives both flexibility and continuity. The fourth argument is that of the need to reassure nations that they keep their bank. When acquiring the Norwegian Christiania Bank, Nordea stated that it would continue to operate as a legal entity. A fifth, and major, reason concerns corporate tax. A subsidiary structure is often more flexible from an international corporate tax point of view than a branch structure. That is, in case of future group restructurings, start-up losses are more easily preserved and taxable capital gains are more easily avoided in a subsidiary structure. Moreover, the conversion of a subsidiary into a branch could create a corporate tax liability. The sixth (surprising) argument is deposit insurance. One must be reminded that the deposit insurer of a subsidiary is the one in the host country, just as the insurer of a branch is the one in the home state. Moreover, in many countries, deposit insurance premia are levied until the deposit insurance funds reach a certain level. After that, the premium is much reduced. If Nordea AB, based in Sweden,

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<sup>38</sup> In principle profit center-based accounting could lead to a similar outcome.

<sup>39</sup> In both cases, we were able to meet the general counsel, the tax and compliance directors, and executive directors in charge of the corporate structure.

transformed its Norwegian subsidiary into a branch of its Swedish bank, it would have to contribute extra deposit insurance premia to the home country Swedish deposit insurance fund in charge of protecting a larger pool of Swedish and Norwegian deposits. Apparently, the bank would not be able to collect the premia paid to the Norwegian insurance fund. The seventh argument for a subsidiary structure is ring-fencing (protection from risk-shifting) and the ability to do a separate listing. Finally, the eighth argument put forward in favor of a subsidiary structure is the ease with which to sell a business unit.

Of the eight arguments advanced to explain the choice of a subsidiary structure, four appear temporary (protection of the original brand, management trust, nationalistic feelings, and shareholder approval), two are due to the incomplete process of European integration (corporate tax and deposit insurance), but the last arguments are permanent features of business (asymmetric information and risk shifting, listing, and flexibility). Two conclusions come out of this analysis of the factors governing the corporate structure. First, there are clear indications that much more work needs to be done on the corporate tax side to facilitate the creation of a European tax group by way of a branch structure. Second, the analysis indicates that the corporate structure of European banks is very unlikely to meet the single entity with branches textbook case, but will involve a web of branches and subsidiaries. The regulatory implications of this type of structure are dealt with in Section 4.

In addition to the corporate tax and deposit insurance premium issues described above, four additional barriers to an integrated European banking markets have been reported (apart from the obvious language, culture, and tax differentials): national consumer protection laws, Value-Added Tax (VAT) on services supplied by shared services centers, regulatory reporting to host and home country authorities, and protection of local firms.

Consumer protection laws in some countries can severely limit the cross-border transfer of information across subsidiaries. Access to customers can be restricted (by, for example, rules on “cold calling”). Products cannot be standardized, as they need to meet national consumer protection regulations on information and the possibility to withdraw from a contract.<sup>40</sup> A significant barrier in a subsidiary structure is VAT on services provided by a “shared services” center. Indeed, a major source of economies of scale in cross-border commercial banking lies in the creation of “shared services” entities (such as risk control, accounting, IT, and call centers). The services sold across countries would incur VAT charges, but since banks typically receive low VAT revenue, the net VAT charges increase the cost of the service. This reduces significantly the benefits expected from “shared services” centers.<sup>41</sup>

Finally, Focarelli and Pozzolo (2001) indicate that the volume of M&A is much smaller in the financial sector than in other sectors. They attribute this to the difficulty of operating in foreign markets due to asymmetric information and to non-regulatory barriers. Despite legislation on freedom of entry, rumours abounded of public intervention to deter the entry of foreign banks in the case of the sale of CIC in France and of Générale de Banque in Belgium, an (unsuccessful) attempt to prevent the sale of the bank of the Champalimaud group to Banco Santander in Portugal, and of a desire expressed by the central bank of Italy to keep the large banks independent.

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<sup>40</sup> A similar list of obstacles is discussed in the Gyllenhammar report (Heinemann and Jopp, 2002).

<sup>41</sup> An additional expense was incurred via fiscal laws. Due to the size and liquidity of the Swedish equity market, the Nordea group was headquartered in Sweden, despite the negative impact on Finnish shareholders. Indeed, these shareholders enjoy an “avoir fiscal” (tax rebate) for dividend paid by national firms, but not for dividend paid by foreign firms. As a bank is an income-stock, Finnish shareholders were penalized by the loss of the “avoir fiscal”.

To conclude this section, it appears that the European bank operating abroad, exclusively with branches, is a myth. As a corporate structure has major financial stability implications, it appears that more work needs to be done to eliminate the (mostly tax) barriers to an efficient corporate structure. Even if these barriers are eliminated, there are several economic reasons as to why a corporate group will operate with a mix of branches and subsidiaries.<sup>42</sup>

Before analyzing the financial stability implications of the types of corporate structure which are emerging, one must first discuss a main characteristic of the transformation of European banking, the large series of mergers. Indeed, the economic benefits expected from bank mergers will have to be juxtaposed the potential costs.

### 3. The Economics of Bank Mergers

The level of Mergers & Acquisition in European banking has been high in the last ten years. In the EU, the number of credit institutions fell from 12,256 in 1985 to 9,285 in 1997 (ECB, 1999). In the USA for comparison, from the 1950s to the 1980s, the number of commercial banks remained quite stable with a number of between 13,000 and 15,000. Between 1980 and 1992, the number fell to 11,500, and between 1992 and 1997, to 9,200. With the advent of nationwide banking, that number is expected to fall to 4,000 (Miskhin, 1999).

Data from Table 12 provides a clear picture of the types of M&As taking place in European banking. Over the period 1990-1999, out of a total of 2,549 transactions, 56% involved within-border/within-industry deals, 20% within-border/across-industry deals, 17% cross-border/within-industry deals, and 6% cross-border/cross-industry deals. Tables 13 a, b, c report a number of larger transactions. Domestic mergers have led to a massive consolidation process in many European countries. A series of specific cross-border transactions have involved the acquisition of merchant banks (most registered in the United Kingdom) to access expertise in corporate finance and asset management. Finally, few cross-border transactions of significant size are observed. Significant transactions, already mentioned, include the Dutch ING Group, with the acquisition of banks in Belgium and Germany, Nordea AB, with the merger of four Scandinavian banks, and the German HypoVereinsbank (HVB), with the acquisition of banks in Austria and Central and Eastern Europe.

Table 12: Mergers and acquisitions in European banking  
(Number of deals classified by country and sector of target firm)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
within-border/ within-industry	51	181	174	137	159	132	157	123	141	181	1,436 (56%)
within-border/ cross-industry	25	47	48	45	60	70	70	59	36	59	519 (20%)
cross-border/ within-industry	24	28	31	31	41	56	49	61	62	52	435 (17%)
cross-border/ cross-industry	10	16	11	9	15	16	17	21	25	19	159 (6%)

Source: Group of Ten (2001).

<sup>42</sup> A similar observation is made by Herring and Santomero (1990) in the context of the corporate structure of financial conglomerates.

Table 13a: A selection of major domestic mergers in Europe

<b>Belgium</b>	1992	CGER-AG (Fortis)
	1995	Fortis-SNCI
	1995	KB-Bank van Roeselaere
	1997	BACOB-Paribas Belgium
		CERA-Indosuez Belgium
	1998	KBC (KB-CERA-ABB)
<b>Denmark</b>	2001	Dexia-BACOB
	1990	Den Danske Bank
		Unibank (Privatbanken, Sparekassen, Andelsbanken)
	1999	Unibank - TrygBaltica
	2000	Danske Bank -RealDanmark
<b>Finland</b>	1995	Merita Bank (KOP-Union Bank of Finland)
<b>France</b>	1996	Crédit Agricole-Indosuez
	1999	BNP-Paribas
<b>Germany</b>	1997	Bayerische Vereinsbank-
	2001	Hypo-Bank (HBV)
		Allianz-Dresdner
<b>Italy</b>	1992	Banca di Roma (Banco di Roma, Cassa di Risparmio di Roma, Banco di Santo Spirito)
		San Paolo- Crediop
	1995	Credito Romagnolo (Rolo)-Credit Italiano (UniCredito)
	1997	Ambroveneto-Cariplo (Intesa)
	1999	San Paolo-IMI
		Intesa-BCI
	2000	SanPaoloIMI-Banca di Napoli Banca di Roma-Bipop (Capitalia)
<b>Netherlands</b>	1990	ABN - AMRO
	1991	NMB-PostBank-ING
<b>Portugal</b>	1995	BCP-BPA
	2000	BCP-BPSM
<b>Spain</b>	1988	BBV(Banco de Vizcaya-Banco de Bilbao)
	1989	Caja de Barcelona-La Caixa
	1992	Banco Central-Banco Hispano
	1994	Santander-Banesto
		Santander-BCH
	1999	BBV-Argentaria (BBVA)
<b>Sweden</b>	1993	Nordbanken-Gota Bank
<b>Switzerland</b>	1993	CS-Volksbank-Winterthur
	1997	SBC-UBS
<b>United Kingdom</b>	1995	Lloyds-C&G-TSB
	2000	RBS-NatWest
	2000	Barclays-Woolwich
	2000	Abbey Nat.-Scottish Provident
	2001	Halifax-Bank of Scotland (HBOS)

Table 13b: A selection of cross-border acquisitions of merchant banks

Buyer	Target
Deutsche Bank	Morgan Grenfell
ING Bank	Barings
Swiss Bank Corp	Warburg, O'Connor, Brinson, Dillon Read
Dresdner	Kleinwort Benson
ABN-AMRO	Hoare Govett
UNIBANK	ABB Aros
Merrill Lynch	Smith New Court
	FG (Spain), MAM
Morgan Stanley Dean Witter	AB Asesores
CSFB	BZW (equity part)
Société Générale	Hambros
Citigroup	Schroder
Chase	Robert Fleming
ING	Chaterhouse Securities

Table 13c: A selection of cross-border acquisitions of commercial banks

Buyer	Target
DEXIA (B, F)	Crédit Communal (B), Crédit Local (F), BIL (L), Crediop (I), BACOB (B)
BACOB (B)	Paribas (NL)
ING (NL)	BBL (B), BHF (G)
GENERALE BANK (B)	Crédit Lyonnais (NL), Hambros (UK, corporate)
FORTIS (B, NL)	AMEV+ Mees Pierson (NL) / CGER/SNCI (B) / Generale Bank (B)
NORDBANKEN (S)	Merita (F), Unidanmark (DK), Christiania (N)
BSCH (E)	Champalimaud (P)
HSBC (UK)	CCF (F)
Hypovereinsbank (D)	Bank Austria-Creditanstalt (A)

A complete review of the various arguments put forward to justify bank mergers is followed by a critical review of the empirical evidence and an assessment of the future outlook.

### 3.1 *The Economic Rationale for Bank Mergers*

Extensive literature has reviewed the various motives for bank mergers and acquisitions (Hawawini and Swary, 1990; Pilloff and Santomero, 1997; MacKay, 1998; Berger et al., 1999). In principle, the decision to merge or acquire a firm should be motivated by the desire to increase the wealth of shareholders of the acquiring firm. However, agency conflicts between shareholders and managers could also lead to situations in which the decision to acquire is motivated by the managers' self interest. Eleven arguments can be distinguished.

1. Cost-based Economies of Scale: Cost efficiency is achieved by lowering average cost per unit of output through expanding a single line of business.

2. Brand-based Economies of Scale: Large size will allow brand recognition to be obtained at a lower cost. This is a special type of cost-based economies of scale, related to marketing costs per unit of product sold. The strategic importance of brand is often recognized as a potential key source of competitive advantage for the future, when consumers of financial services shop on the internet, facing a wide choice of products with the help of the new "integrators".

3. Revenue-based Economies of Scale: Size and a large capital base will allow underwriting of large loans and securities issues and thus has a positive impact on the demand for underwriting services. In the context of the Euro and integrated capital markets, size will be one source of competitive advantage in capital markets.

4. Safety net-based Economies of Scale: As a bank becomes very large, it is more likely to be characterised as “too big too fail” by the public authorities. This would provide a competitive advantage in terms of both a lower funding cost for a given level of capital and risk, and larger positions accepted by counterparties. White (1998) reports the two ratings provided by Moody’s: the bank financial strength ratings (BFSR), measuring solely the intrinsic safety and soundness on a legal stand-alone basis, and the ordinary long-term deposit ratings, factoring in credit support from owners, industry groups and/or official institutions. The quasi-systematic bailing out of insolvent banks in Europe is documented in Goodhart and Schoemaker (1993). Boyd and Graham (1998) and Kane (2001) have expressed great concern that many of the bank mergers in the United States were creating large “too big too fail” banks.

5. Cost-based Economies of Scope: Cost efficiencies achieved by offering a broad range of products or services to a customer base. These could originate from the large fixed costs incurred in gathering an information data base or computer equipment which can be used to provide a large set of services.

6. Sales (Revenue)-based Economies of Scope: The hope of cross-selling new products to an existing customer base. This relies on the assumed preference of investors for one-stop shopping. The case of banking and insurance products is often quoted.

7. Financial Diversification-based Economies of Scope: Standard portfolio theory shows that a portfolio of imperfectly correlated risks will reduce the overall volatility of profit. According to Pilloff and Santomero (1997), lower volatility may raise shareholder wealth in several ways. First, the expected value of bankruptcy costs may be reduced. A large proportion of bankruptcy costs are incurred as a result of the loss of franchise value caused by a default. Second, if the firm faces a convex tax schedule, then expected taxes paid may fall. Third, earnings from lines of business where customers value bank stability (the case of long-term customer relationship) may be increased. Finally, levels of certain risky activities, barely profitable, could be increased because the necessary amount of capital would be reduced. The argument is that a business exhibiting a low correlation with an existing portfolio of business will have a low marginal risk, thus creating the need for a lower capital requirement and a lower threshold of acceptable earnings. Financial diversification can be obtained through offering a range of products, servicing different customers groups, or through spreading credit risk across industries or regions. The assumption here is that firm-based diversification is more efficient than diversification purchased on the market, such as credit derivatives and loan sales (Froot and Stein, 1998). Winton (1999) calls attention to the fact that diversification might not always reduce the risk of bank failure. He introduces the benefit and cost of monitoring loans and the possibility that diversification might lead banks into new sectors in which they have less expertise. In such a richer setting, the benefits of diversification are not always positive.

8. X-Efficiency: X-efficiency refers to the fact that given a current volume of output, a firm is not operating with maximum cost efficiency, i.e., it has a too high cost structure. This source of efficiency is often cited as the prime motivation for a domestic merger, as two banks merging can more easily coordinate the reduction of the size of a too large branch network.<sup>43</sup>

<sup>43</sup> In this respect, it is worth mentioning that the reduction of excess capacity in the steel industry was coordinated by the European Commission, while downsizing of the banking industry is left to market forces, mainly through mergers.

9. Market Power: Horizontal mergers, which reduce the number of firms operating in one market, may lead to less competition and higher margins. Mergers across industries may allow higher profit due to *tying* strategies which allow the firm to package a bundle of goods.

The first nine motives were discussed from a perspective of increasing the value of shareholders' wealth. One notices that, in some cases, the increase in wealth of shareholders does not correspond to a social optimum. Exploiting the benefits of a public safety net or market power will create economic inefficiencies. Moreover, agency conflicts between management and shareholders could lead managers to attempt to increase their own expected utility. Two arguments are described in 10. and 11.

10. Defence-based Economies of Scale: Achieving size (capital clout) that acts as a defence measure against takeovers.

11. The "quiet life" and "hubris" hypotheses: The argument is that higher profit driven by economies of scale or market power can be captured by management in the forms of higher salaries, perks or reduction of risk (the "quiet life" hypothesis). A special case is the hubris hypothesis according to which management because of arrogance (hubris) will overstate the gain from a merger, ending up overpaying target firms (Roll, 1986).

### 3.2 Gains from Bank Mergers – The International Empirical Evidence

The empirical literature in banking has analyzed the degree of cost-based economies of scale, revenue-based economies of scale, cost-based economies of scope, diversification-based economies of scope, and the degree of X-efficiency. Related literature has analyzed on an *ex ante* basis and on an *ex post* basis the economic benefits from bank mergers. Finally, recent studies have examined the relative efficiency of banks at the international level. Although a large part of the empirical evidence is based on studies done in the USA, a series of recent studies have been carried out in Europe. An interesting observation is the high degree of convergence of these studies. A summary of the empirical evidence is followed by a critical analysis and an assessment of the future outlook for M&As in European banking. The presentation attempts to match the eleven motives for bank mergers identified in the previous section.

#### 3.2.1 Cost-based Economies of Scale

US studies on the existence of cost-based economies of scale with multiple products have traditionally used a translog function. This has the advantage of allowing different economies of scale or scope at different levels of output. The wide consensus is that only very small banks have the potential to achieve economies of scale, and that the average cost curve quickly becomes more or less flat for larger firms. The scale-efficient point scale ranges from US\$500 million in the late eighties to US\$25 billion of assets in more recent studies (Berger and Mester, 1997). The substantial increase in optimal size is justified by progress in information technology or deregulation in interstate banking, which allows new forms of organization with larger size.

In Europe, estimates reproduced in the review of the impact of the single market (European Commission, 1997) report the existence of economies of scale up to an asset size of US\$25 billion. Vander Venet (2002) estimates optimal size in the range of €10-100 billion. Two studies have analyzed a specific segment of the financial services industry: mutual funds (Dermine and Röller, 1992; Bonnani et al., 1998). They observe that economies of scale are exhausted in France for asset under management of €500 million. Almost all of these studies

conclude that there are no significant cost-based economies of scale to be gained in M&As involving very large banks.

### *3.2.2 Brand-based Economies of Scale*

To the best of the author's knowledge, there has been no published study on the linkage between size, brand recognition, and interest margins.

### *3.2.3 Revenue or profit-based Economies of Scale*

Akhavein et al. (1997) report that US mergers allow banks to transfer assets from low earnings securities to higher earnings loans. They find these data consistent with the hypothesis that megamergers help to diversify the portfolio and reduce risk, which allows the consolidated banks to issue more loans for the same amount of equity capital. In Europe, there is anecdotal evidence that a large capital base helps on the capital markets. For instance, The Royal Bank of Scotland group, since its acquisition of The National Westminster bank, has been much more active in syndicated loan activities.

### *3.2.4 Safety net-based Economies of Scale*

To the best of the author's knowledge, there have been no published studies on the impact of size on the probability of being deemed "too-big-to-fail" and on the size of the benefits.

### *3.2.5 Cost-based Economies of Scope*

Scope efficiencies in US studies were measured by comparing the total cost of a firm with what would be the cost if that firm were broken into a set of firms offering a smaller set of products. Overwhelming evidence points to the lack of economies of scope. However, serious methodological doubts have been expressed (Dermine and Röller, 1992). On the empirical side, we do not observe specialized institutions, so economies of scope have to be estimated out of sample. Moreover, the translog specification is ill-suited to study economies of scope.

### *3.2.6 Revenue-based Scope Economies*

Berger et al. (1996) attempt to evaluate whether the revenue of banks selling a large range of services is higher than the revenue of specialized banks offering a smaller range of services. They report the absence of revenue-based economies of scope and interpret their results as indicating that either consumers value one-stop shopping but that competition does not enable banks to increase the prices, or that consumers simply do not value one-stop shopping. One should be cautious with these results for two reasons. First, US banking law did not allow the joint offering of banking and insurance services. Second, as discussed in Dermine and Röller (1992), the sample is unlikely to include firms offering only one service, so economies of scope have to be estimated out of sample.

### 3.2.7 Risk, Size, and Financial Diversification

Boyd and Runkle (1993) and Hughes, Lang, Mester and Moon (1999) report that large banks, able to diversify credit risks across many states, exhibit a lower variance of profit. Other studies (Santomero and Chung, 1992; Boyd, Graham and Hewitt, 1993), simulating a merger between banks and insurance companies, come to similar conclusions (a quite obvious result, since low correlation can only lead to more stable profits). Simulation results indicating the benefits of diversification must be viewed with caution for two reasons. First, there is an implicit assumption that the combined firm can be managed as efficiently as the separate firms. Second, as emphasized in an empirical study by Boyd and Runkle (1993), lower volatility of asset return is often combined with a lower equity base (higher leverage) so that the probability of default of large diversified institutions appears to be as high as that of smaller, less diversified but less leveraged firms. At the international level, Berger et al. (2000a) report very low correlations of the aggregate return on equity of banking systems of the various European countries. Dahl and Logan (2002) analyze the overdue international claims of 28 UK-owned banks over the period 1987-2000. They report a significant gain from international diversification of credit risk exposure. Acharya, Hasan, and Saunders (2002), however, express caution in a detailed analysis of credit losses in Italy over the period 1993-1999 that the benefits of diversification might be lost with lack of expertise. Amihud, Delong and Saunders (2002) see no impact on the volatility of stock returns either before or after a cross-border merger.

A word of caution should be expressed here, concerning studies that focus on correlation and volatility of losses. As credit risk distributions are known to be highly skewed (many states of the world with fairly few loan losses, and few states of the world with large recessions and substantial losses), it might be better to analyze the impact of diversification at times of deep recession. A standard approach in the management of trading risk is to simulate the impact of a large shock (stress scenario) on a portfolio. In Table 14, we report the

Table 14: International diversification of credit risk, a simulation exercise  
(*Loan loss provisions as percentage of total loans*)

	1988	1989	1990	1991	1992
Austria	0.32	0.35	0.39	0.54	0.76
Belgium	1.38	1.35	0.64	0.88	1.09
Denmark	2.20	1.69	2.38	2.66	3.20
Finland	0.64	0.54	0.47	0.45	3.20
France	0.46	0.33	0.30	0.49	0.74
Germany	0.40	0.82	0.83	0.60	0.69
Greece	1.09	1.28	1.40	2.50	1.24
Italy	0.46	1.23	1.21	1.12	1.12
Luxembourg	1.48	1.55	2.17	1.72	1.62
Netherlands	0.39	0.34	0.39	0.46	0.43
Portugal	3.44	4.25	4.02	4.45	4.52
Spain	1.27	0.70	0.65	1.10	1.34
Sweden	1.72	1.51	0.75	3.20	6.00
United Kingdom	0.51	2.57	1.53	2.16	2.13
<b>Diversified portfolio <sup>1)</sup></b>	0.65	1.15	0.93	1.15	1.35

Source: OECD and Pesola (2001).

1) The diversified portfolio is a weighted-portfolio of loans of banks from each country, the weights being the 2000 GNP.

provisions on loan losses (an imperfect estimate of loan losses) of the banking system of several countries over the recession period 1988-1992. To study the potential benefits of diversification, we simulate the average loss on a GNP-weighted diversified loan portfolio. In the case of the United Kingdom, which experienced severe loan losses during that period, one can observe that diversification would, *ceteris paribus*, reduce the loan losses by fifty percent. Note that this is only a simulation. Part of the diversification benefit could disappear if credit management quality were to worsen in a large international organization.

### 3.2.8 X-Efficiency

In a survey of 130 studies in 21 countries, Berger and Humphrey (1997) showed that inefficiency, i.e., operating with too high cost relative to the best bank, was in the order of 20-30%, and that operating efficiency was a much more relevant issue than that of economies of scale. In an international study, Allen and Rai (1996) also report a significant degree of inefficiency (25%) for European banks. Dietsch and Weill (1998), using a sample of 661 commercial and savings banks, apply Data Envelopment Analysis (DEA)<sup>44</sup> to study the evolution of efficiency over the period 1992-1996. They observe large inefficiencies, but few improvements over time. Vander Venne (2002), with a sample of 2,375 EU banks over the period 1995-1996, also concludes that X-efficiency is a key determinant of profitability and that universal banks exhibit both higher efficiency and higher profits. Vander Venne, in line with US studies, concludes that operational efficiency is the main determinant of profitability. X-efficiency studies have also focused on revenue efficiency (Vander Venne, 2002, and Maudos et al., 2002). In Canhoto and Dermine (forthcoming), we applied DEA to study banking efficiency in Portugal. This case is interesting because Portugal not only underwent a massive period of deregulation, following entry into the European Community, but also allowed the creation of new banks. Over a five-year period, we report technological improvement of the order of 52%, and we document that new banks are relatively more efficient.

### 3.2.9 Market Power

A long series of studies has attempted to measure the impact of market concentration on margins on loans and deposits. Indeed, the benefits expected from cost efficiency could be offset by concentration which could facilitate collusion, and create higher margins on loans and deposits (the structure-conduct and performance, SCP, paradigm). In their survey of the European and US literature, Carletti et al. (2002) conclude that, in general, concentration tends to support the SCP paradigm (higher margin on loans and lower margins on deposits). Bikker and Groeneveld (1998) and Debandt and Davis (2000) report some form of monopolistic competition in European banking markets. Corvoisier and Gropp (2001) provide significant evidence that the loan markets is affected by concentration, but that there is much less impact on the deposit market. Sapienza (2002) reports that mergers in Italy led to an increase in margin on loans to small borrowers, except in those cases where borrowers had access to multiple lenders. An exception to the literature is Vesala (1998) who analyzes the pricing behavior of banks in Finland, a most interesting test case, given the merger of the two largest banks and the sharp reduction in the number of branches from 3,507 in 1986 to 1,708

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<sup>44</sup> Data Envelopment Analysis is a non-parametric linear programming-based technique. It calculates the reduction of inputs that could be achieved by banks if these were operating on the efficiency frontier.

in 1996. He observes that, over time, the mark-ups on loans (corporate and household ) are reduced. This is attributed to competition from other channels such as on-line banking. However, he observes that the pricing of deposits in Finland is affected by collusion.

### 3.2.10 *Defence-based Economies of Scale*

To the best of the author's knowledge, there has been no study on the linkage between size and the probability of bank mergers. However, Boyd and Graham (1998) report that most mergers in the United States involve large banks buying smaller ones.

### 3.2.11 *The "Quiet Life" Hypothesis*

Berger and Hannan (1994) do observe that the higher margins caused by concentration often lead to less efficient firms, evidence of the "quiet life" hypothesis.

Empirical evidence on the potential source of economic benefits (*ex ante* expected gains) derived from bank Mergers & Acquisitions has been reviewed. Additional empirical evidence follows on the realized effects of bank mergers (*ex post* dynamic analysis).

### 3.2.12 *The Benefits of M&As: A Dynamic Analysis*

Vander Venne (1996) analyzed 492 takeovers in the EU over the period 1988-1993. The results indicate that domestic mergers among equal size partners significantly improve the performance of the merged banks to reach X-efficiency. A series of studies in the US analyze how M&As have helped banks to improve X-efficiency as well as to reach a better scale or scope. These studies generally report the hypothesis of no improvement in efficiency. However, more refined studies have shown that mergers that involve inefficient banks *do* lead to substantial improvements in efficiency (Berger et al., 1999).

Studies that have focused on profits have been able to observe improvements in profitability. In a study on megamergers, Akhavein, Berger and Humphrey (1997) show that these mergers help to improve profitability. This is caused not by an improvement in efficiency, but rather by a change in the output mix in favor of more loans and fewer securities holdings. Also, larger gains are obtained when the inefficiency of one of the banks is most pronounced. At a more micro level, Zollo (1998) documents the importance of merger experience and codification as key determinants for future successes in mergers.

Another strand of the literature has been to analyze the impact of mergers on the stock market value of firms and the benefits accruing to both the acquiring and the acquired firms (Hawawini and Swary, 1990; Pilloff and Santomero, 1998). Most studies fail to find a positive relationship between merger activity and stockholder wealth. Most often, what is observed is a wealth transfer from the acquiring firm to the acquired firm. These results are consistent both with manager-utility maximization and the *hubris* hypothesis. DeLong (2001) attempts to distinguish between *focused* mergers (same geography and activity) from *non-focused* mergers (different geography and/or activity). She reports that focused mergers create on average a gain of three percent in the combined value of the target and the bidder, while non-focused mergers destroy value. Using a 1988-1997 data base with 54 transactions, Cybo-Ottone and Murgia (2000) report positive returns for domestic and insurance mergers in Europe, and no value creation for mergers between commercial banks and securities firms.

Recent studies have examined the relative efficiency of banks at the international level. Bikker (1999) pools all European banks into a single sample, and observes a lower efficiency

in France and Spain. However, this assumes a unique production function. When taking into account environmental factors such as population density, Dietsch and Lozano (2000) or Maudos et al. (2002) find that the efficiency differential very much disappear. So, Berger et al. (2000a, 2000c) propose analyzing relative efficiency of foreign banks and domestic banks within one country. They observe that, on average, foreign banks are less efficient than domestic banks. They attribute this to the difficulty of managing at a distance. They therefore express some doubts about the effects of globalization. However, one should be careful, since our data show that foreign banks have typically a very small market share. One can guess that their business mix is likely to be quite different from that of national banks, so these efficiency studies, using macro data, cannot capture the business mix differential.

### ***3.3 M&As in European Banking: Evaluation and Future Outlook***

The overall convergence of the literature can be summarized as follows. Economies of scale appears to exist up to €25-100 billion of assets, but the most significant factor of competitive advantage is not scale but operating or revenue efficiency. Indeed, in most studies, for banks of different size, one observes inefficiencies of the order of 25-30%. In this respect, it has been shown that the acquisition of inefficient banks by efficient ones can lead to improvements in efficiency.

A first critical observation is that, because of limited availability of data, the studies refer to basic banking transactions, loans, deposits, and securities, but have not attempted to study the existence of economies of scale for specific activities, such as credit cards, derivatives, and custody of securities. Second, the benefits of financial diversification are difficult to measure. Indeed, economic crises are very rare events, and there are, therefore, few data points to evaluate the benefits of diversification. But diversification across businesses, such as insurance and banking, do provide diversification benefits. Two key-issues include the ability of management to control a large and complex organization, and the question of whether the benefits of diversification might not lead to a reduction in the capital base, such that the risk of insolvency would remain unchanged. The third point is that empirical studies can only be relevant if they are a good guide for the future. The arrival of the euro has created the need for larger size to operate in capital markets. Larger size firms, with a large capital base, will facilitate underwriting and trading in specific segments of the capital markets. Finally, the potential existence of economies of scale related to the use of new technology is an open issue. With regard to the latter, one can not fail to be astonished by the fact that the empirical estimates of optimal scale have moved from US\$500 million in the early 1990's to US\$25 billion in most recent studies.

In the light of the above evidence, one can attempt to assess the outlook for M&As in European banking. A strong case can be made that mergers of European banks can at least facilitate an increase in efficiency and help those active in capital markets to reach an optimal size. As efficiency gains can be realized more easily with domestic mergers, one can predict that domestic consolidation will continue in a number of European countries. As the domestic efficiency gains are realized, and as the degree of concentration will soon hit the oligopoly threshold, domestic mergers will be followed by cross-border transactions. With regard to capital market activities, the need for size will imply a continuation of cross-border consolidation. Finally, as banks are looking for growth activities, some will acquire banks in emerging markets. Public policy-makers have to balance the benefits expected from bank mergers with the potential costs. The public policy issues in European banking are discussed in Section 4.

#### 4. Mergers and Acquisition in Europe: Three Public Policy Issues

Three public policy issues raised by bank mergers in Europe will be analyzed. These include protection of investors, safety and soundness (systemic stability), and market power due to concentration.

##### 4.1 *Investor Protection*

A first potential source of market failure is imperfect (asymmetric) information, which can prevent the proper functioning of unregulated private markets. For instance, because of opacity, depositors find it costly to evaluate the solvency of their bank. The economic literature (e.g., Kay and Vickers, 1988) recognizes that the inability of consumers to evaluate properly the quality of a product can create a market failure. An inefficiency may arise because the quality of a service is not valued properly by the market and reflected into higher prices, so there is insufficient incentives for firms to produce quality. Regulation (e.g., minimal qualifications in the legal or medical profession) is a way of ensuring a minimum level of quality. In banking, imperfect asymmetric information can create the well-known moral hazard. Finance theory (Merton, 1977) has shown that bank shareholders benefit from an increase in risk, such as higher leverage or riskiness of assets. This provides a rationale for providing protection for the “uninformed” depositors.<sup>45</sup> In international banking and cross-selling of services, an additional issue is raised. The possibility of competitive deregulation raises the question of the need to harmonize international regulations or to create a single regulator (Dermine, 1996b; Dell’Ariccia and Marquez, 2001). The answer is again related to imperfect information. Competition among national regulators is desirable whenever the parties can evaluate the quality of regulatory systems. Harmonization of rules to ensure minimal quality would be necessary only if the market could not discriminate. An alternative to the harmonization of prudential regulation is to grant some supervisory powers to the host state, whenever it is felt that domestic investors are not adequately protected by foreign regulations or supervision. This is precisely the approach adopted by the European Union, for reasons of public interest, which leaves the right to control foreign branches to each host country (Norton, 1991).<sup>46</sup>

##### 4.2 *Bank Runs and Systemic Risk*

The second market failure is the potential for bank runs and systemic crisis. Banks are special because the financial contract that emerges illiquid loans funded by short-term deposits- creates a potential market failure and a need for public intervention (Rajan, 1998; Diamond and Rajan, 2002). The liquidity mismatch between assets and deposits and the failure of depositors to coordinate (Diamond and Dybvig, 1983; Postlewaite and Vives, 1987; Allen and Gale, 1998) create the risk that depositors run to withdraw their funds. A run can be triggered by bad news about the value of bank assets or by any unexplained fear. In both cases, there may be a loss, since illiquid assets will be sold at a discount. Moreover, a bank failure could eventually trigger a signal on the solvency of other banks, leading to a systemic crisis.

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<sup>45</sup> Other privately based mechanisms include disclosure of information, creation of risk-free banks, and reputation of banks (Dermine, 2000).

<sup>46</sup> The European Commission has clarified the concept of “general good” to ensure that it is not used as an excuse to protect local firms from foreign competition (Communication, 26 June 1997).

This market failure explains the introduction of banking regulations and the creation of safety nets to guarantee the stability of banking markets. They have taken the form of deposit insurance, lender-of-last-resort interventions, and public (treasury-led) bail outs. Deposit insurance funds are unlikely to contribute much to reducing systemic risk because they cover small deposits only.<sup>47</sup> Runs are likely to be initiated by large firms or financial institutions. Therefore, lender-of-last-resort interventions by central banks or public bail out remain the most likely tools in order to avoid bank runs and systemic crises. Banking history shows that public bail out is most often the case, given the need to call on tax-payers to finance credit losses (Goodhart and Schoenmaker, 1993).

In the context of cross-border European banking, five issues need to be identified. These concern, successively, the too-complex-to-fail, the freeze of insured deposits, the ability of some countries to deal with eventual bailout costs, cross-border spillover effects, and the eventual lack of risk diversification. A discussion of the adequacy of current institutional structure in the EU follows.

#### *4.2.1 Too-Complex-To-Fail*

First, imagine the case of a large European bank with significant cross-border activities, which runs into financial distress. It would be very difficult to put this bank into receivership. Given the complex web of corporate subsidiaries and the various legal complexities, the uncertainty concerning the costs of a default is likely to be high, and this complexity might create a temptation for a bail out (“too big and too complex to fail”).

#### *4.2.2 Freeze of Deposits*

The second issue relates to costs incurred through bank failures. As the financial distress cases of the major Swedish banks have shown, it appears very difficult to put a large bank into liquidation. The issue is not so much the fear of a domino effect, whereby the failure of a large bank would create the failure of many smaller ones – strict analysis of counterparty exposures has reduced substantially the risk of a domino effect. The fear is, rather, that the need to close a bank for several months to value its illiquid assets would freeze a large part of its deposits and savings, causing a significant negative effect on national consumption. Kaufmann and Seelig (2002) document the timing of the availability of deposits in the case of a winding up. This is reported in Table 15. In several countries, insured deposits could be frozen for a couple of months, and uninsured deposits for even longer.<sup>48</sup> The need to scrutinize more carefully the bankruptcy process for large financial institutions appears timely, as a major restructuring trend has reduced the number of banks in a number of European countries to very few large ones.

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<sup>47</sup> As documented in Table 15, their coverage is limited to €20,000 in most European countries. Gropp and Vesala (2002) argue that the creation of a formal deposit insurance system in Europe has increased the degree of bank monitoring by non-insured depositors who, in the past, could count on a full bail out.

<sup>48</sup> Moreover, with the time needed to resolve the uncertainty about the true value of assets, deposits could be exchanged into traded securities to revive liquidity (Dermine, 2000).

Table 15: Deposit insurance systems in selected countries, 1990 and 2002

Country	Coverage (ECU, 1990)	Coverage (euro, 2002)	Funds Availability	
			Insured	Non-insured
<b>Austria</b>	13,700	20,000	3 Mo	5-6 Mo
<b>Belgium</b>	12,400	20,000	1 Mo	several Mo
<b>Denmark</b>	32,940	40,000		
<b>Finland</b>	NA	25,000		
<b>France</b>	60,880	60,000	3 Mo	NA
<b>Germany</b>	30% of equity per deposit	Statutory scheme: (20,000; 90% of deposits) Voluntary Banks' Scheme: 30% of equity	3 Mo	NA
<b>Greece</b>	NO	20,000	6 Mo	NA
<b>Ireland</b>	12,600	(20,000; 90%)		
<b>Italy</b>	100% for first 105,000 and 75% for next 420,000)	103,291	3 Mo	NA
<b>Luxembourg</b>	12,400	20,000		
<b>Netherlands</b>	18,400	20,000	3 Mo	NA
<b>Norway</b>	NA	236,243		
<b>Portugal</b>	NA	25,000		
<b>Spain</b>	10,273	20,000	1 Mo	12 Mo
<b>Sweden</b>	No	25,000		
<b>United Kingdom</b>	75% of deposits (ceiling of 19,800)	100% coverage up to 3,125 and 90% coverage between 3,125 and 54,688	3 Mo	NA

Source: Belaish et al. (2001), Kaufman and Seelig (2002), Huizinga and Nicodeme (2002), Grandlund (2002).  
NA = not available.

#### 4.2.3 Bailing Out Costs: Too Big?

The third issue is that, bank failures and partial or complete bail outs could imply very high costs for the treasury or the deposit insurance system. To assess the potential costs of a bail out, we report in Table 16 the level of equity (book value) of seventeen European banks as a percentage of the GDP of the home country. Not surprisingly, the highest figures are found in Belgium, the Netherlands, and Switzerland. The equity to GDP ratio is 12.37% for the United Bank of Switzerland, 4.09% for ABN-AMRO, as compared to 1.34% for Deutsche Bank. For the sake of comparison, the equity of Bank of America and Citigroup represent, respectively, 0.59% and 0.75% of US GDP. If one takes as a reference point the fact that the bail out of Cr dit Lyonnais has cost the French tax payers twice the book value of its 1991 equity (admittedly, an arbitrary case), the costs of bailing out the largest Swiss bank could amount to 24% of Swiss GDP, as compared to 2.7% of German GDP in the case of a scenario based on Deutsche Bank. Moreover, and quite a significant observation, it is worth noting the very rapid increase in these numbers over the four-year period 1997-2000, during which, for instance, the ratio of UBS increased from 8.65% to 12.37%.

Table 16: Bank size

Country	Bank	Equity (book value) (€ million, 2000)	Equity/GDP (2000) (%)	Equity/GDP (1997) (%)
UK	RBS	37,649	2.43	0.51
UK	HSBC	35,060	2.26	2.00
CH	UBS	31,364	12.37	8.65
DE	Deutsche Bank	29,476	1.34	0.90
NL	ING Groep	28,980	6.65	5.94
Spain	Santander-CH	28,415	4.30	1.75
CH	Crédit Suisse	26,752	10.55	5.63
F	Crédit Agricole	26,646	1.86	1.55
F	BNP-Paribas	24,194	1.69	0.80
UK	Barclays	23,519	1.52	1.28
DE	HVB	21,777	1.00	0.42
NL	ABN AMRO	17,809	4.09	3.88
NL	Rabobank	16,258	3.73	2.84
F	Société Générale	16,605	1.16	0.89
DE	Dresdner	15,150	0.69	0.65
B	Fortis <sup>1)</sup>	15,989	2.27	1.33
B	KBC	7,668	2.85	1.28
USA	Bank of America	56,008	0.59	0.24
USA	Citigroup	70,518	0.75	0.50

Source: Thomson Analytics, author's calculations.

1) In the case of the Belgian-Dutch Fortis, the ratio is Equity to the sum of GDPs from Belgium and the Netherlands.

#### 4.2.4 Home versus Host Country

The fourth issue concerns cross-border spillovers. Imagine that a foreign bank buys a Dutch bank. The Dutch treasury could be forced to bail it out for reasons of internal stability, but would not have the right to supervise the branch of a foreign bank because of home country control. Since the lender-of-last-resort and the treasury will be concerned primarily with their domestic markets and banks operating domestically,<sup>49</sup> and since they will bear the costs of a bail out, it is legitimate that the insurers keep some supervisory power on all institutions (branches and subsidiaries) operating domestically. That is, host country regulation could apply to limit the risks taken by financial institutions and the exposure of the domestic central bank or treasury in cases of bailing out.<sup>50</sup> As in this case, the Dutch treasury would keep financial responsibility, it should be able to retain supervisory control. In other words, home country control has to be complemented by some form of host control as long as the costs of bailing out remains domestic. In this last case, since the default of a large international bank could affect several countries, the decision to bail out could be transferred to the European level, or should at least require coordination among these countries.

<sup>49</sup> It is well known that the Bank of Italy did not intervene to prevent the collapse of the Luxembourg-based Banco Ambrosiano Holding, because it created little disruption on the Italian financial markets.

<sup>50</sup> Bailing out would occur if the failure of a branch of a foreign bank led to a run on domestic banks.

#### 4.2.5 Corporate Subsidiary Structure and Risk Diversification

The subsidiary structure identified earlier as a common form of cross-border expansion creates an additional problem for supervisors. There is a dynamic consideration to take into account. A financial conglomerate could be pleased with its degree of diversification while each subsidiary could become very specialized in local credit risk. This implies that banks in a given country could find themselves increasingly vulnerable to idiosyncratic shocks. One could argue that, for reasons of reputation, the parent company will systematically bail out the subsidiaries as if they were branches. This could be true in many cases, but there will be cases where the balance of financial costs vs. reputation costs may not be so favorable.

Five issues related to financial stability have been analyzed. Let us now review the adequacy of the current EU institutional structure.

The EU institutional structure currently in place to deal with financial crises has received a great deal of attention in the last two years (Economic and Financial Committee, 2000 and 2001). There are currently three potential forums for coordination. The *Banking Advisory Committee* (BAC) assists the European Commission in preparing new banking community legislation. At the *EU Groupe de Contact* (GdC), national supervisors of banks meet regularly to exchange information. At the European Central Bank, the Banking Supervisory Committee (BSC) works in the context of the Eurosystem's task of contributing to the smooth conduct of policies pursued by the competent national authorities relating to the supervision of credit institutions and the stability of the financial system (Article 105 (5) of the Treaty on European Union). In the context of the Financial Services Action Plan, the directive on *Winding up of Credit Institutions*<sup>51</sup> was finally adopted, sixteen years after it was first proposed. This is consistent with the home regulator principle. When a credit institution with branches in other member states fails, the winding up process will be subject to the single bankruptcy proceedings of the home country. Note that, although recognized as a significant piece of legislation to avoid the complexity issue, it falls short of solving the subsidiaries issue.

The Brouwer reports (Economic and Financial Committee, 2000 and 2001) have very much validated the current EU institutional structure to deal with a financial crisis. They essentially argue that there would be no legal impediment to the transfer of information across borders, and recommend an additional effort to strengthen cooperation through Memoranda of Understanding (MOU) dealing with crisis situations.

In our opinion, there are three reasons as to why the current state of affairs is not satisfactory. The first one, discussed above, is that the bank with one-license branches, in most cases, is a myth. With subsidiaries subject to different bankruptcy proceedings, a large European bank would fall into the category of large and complex financial institutions (LCFI). In this context, the work of the Brockmeier committee (2001), at the level of the Group of Ten, is a first effort to understand the complexity and the information that would be needed to handle these cases at short notice.

The second reason is that one can easily imagine that conflicts of interest between countries on the decision to close a bank will arise, and that the sharing of the bailing out costs among countries will not be simple. These conflicts of interest could, at times, even limit the cross-border exchange of information among regulators (Holthausen and Ronde, 2001).

The third reason as to why cooperation among national supervisors or national central banks might not be sufficient is that, in most cases, a bail out is a public finance problem, with the cost borne by tax-payers. In this context, it would seem that the appropriate forum to take

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<sup>51</sup> Official Journal 125, 05.05.2001.

a decision to bail out an international bank should be a joint meeting of ECOFIN, the European Council of Finance Ministers, and the ECB. A tale of how European supervisory coordination and centralization is likely to develop is as follows. During a week-end, the BSC met in Frankfurt to consider the need to launch the bail out of a large international bank. As it was becoming rapidly clear that the ECB should not increase the money supply to restore the solvency of that bank, and that tax-payers' money would be needed to finance the bad debts, ECOFIN was invited to take the decision to bail it out. On the following Monday, due to a public outcry, that supervision of the problem bank had not been handled properly by the national supervisor, a decision was taken to transfer supervision to a European agency. An alternative development, which we favor, would be to take more forward-looking action, that is, to transfer the supervision of international banks to a European regulatory agency.<sup>52</sup> An international bank would be defined either by its size, relative to the GDP of one country (say, an equity of 3% of GDP), or by its market share in a foreign country (say 10%).

### 4.3 Concentration and Market Power

The third public policy issue concerns the impact of bank mergers on concentration and the pricing of financial services. Data on market shares are available in the "country" tables at the end of the paper. Not surprisingly, they show a relatively high concentration level in small countries such as Denmark, Finland, Sweden and the Netherlands, with the five largest banks capturing more than 80 percent of the market, as compared to 14 percent in the case of Germany. Corvoisier and Gropp (2001) report that the widely used Herfindahl-Hirschman Index (HHI)<sup>53</sup> has sharply increased across time, exceeding the "1,800 high level concentration" threshold in a number of countries.

To assess the impact of concentration on pricing, one must take into account two factors: the presence of co-operative banks and the degree of contestability (Cetorelli, 1999). As Table 17 indicates, several European countries have a very large segment of non-profit oriented financial institutions, savings banks and co-operative banks. In Germany, France and Spain, these institutions, competing for size, tend to reduce the margins charged by private profit-oriented banks. This situation could evolve as these institutions change their legal status, a case observed in the United Kingdom with large building societies becoming *plcs*. Secondly, one has to analyze the degree of contestability, i.e. the ease for a new player to enter a profitable market segment. Deregulation in the 1980's and the creation of money market funds, for instance, reduced the ability of banks to raise margins on deposits. Similarly, access to capital markets by large firms with commercial paper or bond issues also reduces the potential impact of concentration on loan margins. However, some specific financial services appear to be much less open to contestability. The reviews of the financial services sector in Australia (Wallis, 1997) and Canada (MacKay, 1998) and the reports on competition in UK banking (Cruickshank, 2000; Competition Commission, 2002) all point out that the retail demand for cash and payment services and the access to credit by small and medium size enterprises (SMEs) is primarily served by local branches of banks. Moreover, although diminishing, there is evidence of *clustering*, that is consumers acquiring products in a bundle rather than

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<sup>52</sup> We do not discuss whether supervision should be done by a central bank or by another institution. See Vives (2001), European Central Bank (2001), Duisenberg (2002) or Kahn and Santos (2002) for a review of arguments leading to different recommendations.

<sup>53</sup> The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

Table 17: Market shares per type of institution in selected euro-area countries  
(in %, end-1998)

	In Percent of Total Assets	In Percent of Total Deposits	In Percent of Total Loans
<b>France</b>			
Commercial banks	54.1	38.4	43.5
Savings and cooperative banks	28.4	60.1	36.5
Others	17.5	1.5	20.0
<b>Germany</b>			
Commercial banks	47.9	43.9	47.3
Savings and Cooperative banks	27.8	50.2	33.0
Others	24.2	5.9	9.2
<b>Spain</b>			
Commercial banks	55.7	48.6	52.7
Savings and Cooperative banks	38.7	48.1	40.2
Others	5.6	3.3	7.1
<b>Italy</b>			
Commercial banks	81.1	83.2	85.0
Savings and Cooperative banks	13.3	15.7	13.6
Others	5.6	1.1	1.4

Source: Belaisch et al. (2001).

individually (for instance, 70% of Canadians buy mortgage and credit cards from the institution through which they do their primary banking transactions). In the United States (Kwast, 1999; Amel and Starr, 2001), the primary financial institutions for 93% of households is a local depository institution; and for small businesses, the primary institution is local<sup>54</sup> for 88%. Degryse and Ongena (1991) observe that technological developments have barely had any impact on the distance between SMEs and their banks in Belgium over the period 1975-1997.

Five types of empirical analysis can allow one to test the effect of market power. The first approach is to assess the impact of concentration on prices. The second one is to assess the impact of a change in money market rates on interest rates (the so-called pass-through effect). The third approach is to observe the degree of interest rate rigidity. The decision to change a rate involves the comparison of the cost of changing to the costs incurred by being out-of-equilibrium. A small elasticity of demand very much reduces these costs, which explains price rigidity (Dermine, 1984; Hannan and Berger, 1991). A fourth approach is to observe the level and stability of profitability in a business segment. A fifth one is to observe the market to book value ratio. Market power could lead to a higher stream of future profits, which, in an efficient market, should be discounted in the market value of shares (Dermine and Hillion, 1992).

Corvoisier and Gropp (2001) provide significant evidence that the loan market is affected by concentration, but that there is much less impact on the deposit market. Average contractual rates on customer loans in a banking market with a Herfindahl-Hirschman Index of 3,000 (e.g. in the case of Finland) are estimated to be about 120 basis points higher than in a market with an HHI of 1,000 (Portugal, Spain and Belgium). Focarelli and Panetta (2001) analyze the effect of bank mergers on margins on large deposits (larger than €9,000). They observe an increase of margins in the short term but a decrease in the longer term, indicative

<sup>54</sup> An exception to this literature is Petersen and Rajan (2000), who report for the United States a significant increase in the distance between the location of banks and SMEs during the period 1970 to 1993.

of the fact that the cost efficiency effect of bank mergers dominates the market power effect on the deposit market. These first studies are consistent with the view that the large deposit market is contestable because of the presence of money market funds, but that the loan market is much less competitive. Sapienza (2002) reports that, in the case of Italy, in-market mergers tend to increase margins on loans to small borrowers.

In Table 8 above, we have calculated margins on savings deposits, margins on consumer loans, the “retail” intermediation margin calculated as the sum of the first two, and margins on corporate loans. It is remarkable to observe that the “retail” intermediation margin<sup>55</sup> has fallen by fifty percent in most countries (except Germany). However, this fall is mostly due to a fall in margins on savings deposits, as margins on loans have increased in several countries. This has likely been driven by the overall fall in the interest rate level rather than by an increase in competition.

As for margins on corporate loans, also reported in Table 8, these appear to have gone up. But one should be prudent with regard to reported interest rates on corporate loans. Indeed, most often, these data represent some “average” loan rates. Microdata of a large continental European bank indicate a substantial difference between the reported “country” loan rates and the rates applied by this bank.<sup>56</sup> Moreover, it appears that margins on these loans are a decreasing function of the size of the transaction. More precise data on interest rates on loans applied by banks for loans of different size and risk would be welcome.

DeBondt (2002) studies the speed of the pass-through effect over the period 1996-2001 with a VAR framework and observes a one-year adjustment of 68 basis points for time deposits, 44 bp for consumer lending and 76 bp for loans to enterprises<sup>57</sup> and retail real estate loans. The lack of a one-to-one relationship is also indicative of market power in a Klein-Monti type model (Freixas and Rochet, 1997).

In the United Kingdom, the Competition Commission (2002) has produced a very detailed report on the supply of banking services to SMEs. The authors observe that the four largest clearing banks have a market share of 90%, a share that has not changed in the last ten years. They believe that there are significant barriers to entry due to sunk investment costs. They observe an average after-tax return on equity (ROE) allocated to SMEs between 1998 and 2000 of 24%, compared to a cost of equity of 10.8%. After a cautious approach to restate equity and take into account the cyclicity of loan loss provisions, they estimate an adjusted return on equity of 18%, and conclude that these factors indicate a lack of effective competition. The Competition Commission proposed several behavioral remedies to facilitate competition (e.g., easing the switching from one bank to another and information transparency). Moreover, it proposes forcing the four clearing banks to pay a market-related rate on demand deposits.<sup>58</sup> In Table 18, we report the ROE and the market to book value ratio of a sub-sample of large banks in the United Kingdom, Germany, France, and Spain. With the exception of Germany, banks seem to earn an ROE largely in excess of the cost of equity. This conclusion is reinforced by a market to book value ratio largely superior to one.

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<sup>55</sup> The “retail” intermediation margin is the difference between the loan rate and deposit rate on savings deposits. This measure is preferred to the usual intermediation margin (total interest margin divided by total assets) as it is not affected by a change in business mix in retail, corporate, or treasury activities.

<sup>56</sup> Identity not revealed for agreement of confidentiality.

<sup>57</sup> We emphasize here the impact of competition on margins, not on the availability of funds. Two arguments in the literature say that monopoly power could increase the availability of funds thanks to the ability to make a profit in the future: These are the hold up effect (Cetorelli, 2001) or investment in information acquisition effects (Fischer, 2000).

<sup>58</sup> These recommendations have been accepted by the director of the Office of Fair Trading and by the Chancellor of the Exchequer.

Table 18: Bank profitability and valuation multiple

	1996	1997	1998	1999	2000	2001	2004 <sup>2)</sup>
<b>Barclays</b>							
MV/BV <sup>1)</sup>	2.2	3.6	3.7	3.6	2.7	2.7	
ROE	NA	15.6	17.6	22.3	29.2	18.7	20 (9%)
<b>Lloyds-TSB</b>							
MV/BV	4.7	7.5	7.9	6.8	4.3	4.0	
ROE	NA	37.0	23.0	29.0	28.0	29.0	NA (9.3)
<b>Deutsche</b>							
MV/BV	1.3	2.2	2.5	1.5	2.3	1.6	
ROE	NA	3.2	10.3	14.3	21.0	0.6	14 (9.7)
<b>Dresdner</b>							
MV/BV	1.3	2.3	2.8	2.4	2.3	1.5	
ROE	NA	11.3	9.8	9.6	15.0	1.4	11 (9.8)
<b>BNP-Paribas</b>							
MV/BV	1.1	1.1	0.9	1.2	1.9	2.9	
ROE	7.9	10.8	12.0	15.0	21.0	18.8	17 (9.5)
<b>Société Générale</b>							
MV/BV	1.0	1.4	2.4	2.2	2.2	2.6	
ROE	NA	11.0	7.0	4.0	22.0	15.7	19 (9.6)
<b>BSCH</b>							
MV/BV	2.1	3.7	5.9	5.3	3.0	3.0	
ROE	NA	17.8	21.0	31.0	27.0	13.0	20 (9.6)
<b>BBVA</b>							
MV/BV	2.1	4.3	7.4	5.6	4.4	3.2	
ROE	NA	17.7	21.0	4.0	28.0	18.8	36 (10)

Source: Thomson Analytics. NA = not available.

1) Market value of shares (MV) divided by the book value of equity (BV).

2) ROE forecast. The estimate of the cost of equity is given in parentheses (source: Schroder Salomon Smith Barney, 2001).

Table 19: EU employment in small and medium size enterprises (SME) by country

Country	Total	SME as % of total
Austria	2,586,923	61
Belgium	3,678,610	53
Denmark	1,552,039	63
Finland	1,066,169	52
France	15,335,260	55
Germany	30,032,770	55
Greece	1,731,406	59
Ireland	695,832	64
Italy	13,979,206	69
Luxembourg	179,967	66
Netherlands	5,218,848	55
Portugal	2,857,252	68
Spain	10,933,530	59
Sweden	2,109,808	56
United Kingdom	20,124,117	45
Total	112,081,737	56

Source: Karmel and Bryon (2002).

Given the importance of SMEs for employment (fifty percent in most countries, according to Table 19), more effective monitoring of competition in European retail banking appears necessary. Competition reviews should focus on very specific banking services, such as payment (monetary transmission) and credit to SMEs. An interesting corollary of this analysis (and a proposal in the Canadian 1998 MacKay review) is the suggestion to open payment services not only to banks but also to insurance firms and fund managers as a means of reducing concentration and increasing competition. Such a move would blur the remaining differences between banks and other providers of financial services.

An issue important for antitrust specialists is whether price regulations, such as the recent ruling by the European Commission on the cost of cross-border payments, and the proposed remedies by the British Competition Commission, need to complement more traditional measures taken to facilitate entry and competition in banking markets.

A second effect of concentration has been the object of great attention in the United States and Canada. It concerns the fear that the creation of large banks would have a negative impact on the access to bank credit by SMEs. There has also been some concern that takeovers by foreign banks could reduce lending to local firms (Berger, Klapper and Udell, 2001). The perception is that large banks would concentrate their activities on large corporate firms at the expense of small and medium size firms, and that foreign-owned banks, managed by a distant head office, would reduce the supply of loans. Three empirical studies document the impact of bank mergers on small business lending in the United States. They reach a similar conclusion that the impact is unlikely to be significant (Berger et al., 1998; Peek and Rosengren, 1999 and Strahan and Weston, 1999). In Europe, Cruickshank (2000) reports the absence of credit rationing for small and medium size British enterprises. In Europe to the best of our knowledge, there is only one study of the impact of bank mergers on the availability of loans. Sapienza (2002) reports, in the case of Italy, that mergers tend to reduce the availability of funds. To the best of our knowledge, no other study exists in Continental Europe, and a task of central banks should be to monitor both the volumes and prices of services to retail clients and small and medium size companies.<sup>59</sup>

Finally, one must mention the competition versus stability debate. The argument, summarized in Carletti and Hartmann (forthcoming), is that low competition or price regulation will create larger margins and a larger stream of future profits (the *franchise value*). In such a context, management will wish to contain risks to preserve the franchise value. Keeley (1990) for the United States and Salas and Saurina (forthcoming) for Spain have shown an empirical relation between deregulation, lower bank valuation, and risk-taking. Some have revived the argument of the benefits of deposit rate regulation for banking stability (Hellmann et al., 2000). We do not follow this line of reasoning for the following reasons. First, on empirical grounds, it is not clear what the direction of causality is. Is it from low market value of shares to risk taking, or is it that a recession has created simultaneously a low market value of shares and credit losses. The observed correlation between market value and risk-taking could be spurious. Second, in Dermine (1986), we demonstrate that equity capital can create a similar incentive to reduce risk to that created by deposit rate regulation. The intuition is that shareholders, having more at stake, will be relatively more concerned with the low outcomes of risky positions.<sup>60</sup> Third,

<sup>59</sup> A similar call is expressed by Carletti et al. (2002).

<sup>60</sup> Hellmann et al. (2000) recognize this point but argue that, in a multi-period setting, costly equity capital can reduce the value of the franchise, so that deposit rate and capital regulations should co-exist. One way to reduce the cost of equity capital is to make it tax deductible. Current international capital regulations limit hybrid securities, such as Reserve Capital Instruments, to 15% of capital the cost of which is tax deductible. The tax deductibility of cost of equity capital could be generalized.

oligopoly or deposit rate regulation can create additional effects not taken into account in the literature. Profit can disappear with lower cost control or managerial expense (the “quiet life” hypothesis), competition through costly branches, or led by trade-unions higher wage demands (Neven, 1993). Indeed banking supervisors should not ignore the incentives created by competition and lower profitability, and they need to reinforce the control of risks and capital adequacy.

## Conclusion

A twenty-year review of development in the European banking sector has, hopefully, helped to better understand the dynamics of the transformation and the potential future developments. Seven of the main conclusions of the report are as follows.

First, the creation of the single market has been conducive to massive deregulation of the banking sector in all the EU countries and to very rapid growth in this sector. In several countries, the ratio of bank assets to GDP has doubled in the last twenty years, with an almost constant workforce.

A second observation is that the consolidation movement has created banks of very large size, a trend which even accelerated in the years 1997-2001. One of the main implications is that European countries of smaller size, such as the Netherlands and Switzerland, would face severe hardship, should one of their large national banks default.

Third, although European law does allow a single banking license, a single home regulator and single bankruptcy proceedings for banks operating with branches abroad, the reality is that the significant cross-border mergers that have taken place have often resulted in the creation of a holding company structure with branches and subsidiaries. This implies that, in case of winding up, several legal structures would be involved. This increases the complexity of monitoring, and winding up these large and complex financial institutions in cases of bankruptcy. Although further work on European integration will make branches more attractive, the corporate subsidiary structure will not disappear, since some permanent economic factors motivate its existence. From a dynamic credit risk angle, it may well be that these banks are well diversified at the holding company level but not at a national level, since a subsidiary focuses primarily on its local market. This could increase the insolvency risk of bank subsidiaries in individual countries.

Fourth, as the closure of a large international bank could have substantial cross-border spillovers, there is a need for centralization, or at least European-wide coordination of the decision to close or bail out international banks. Furthermore, in order to avoid a liquidity squeeze, bankruptcy proceedings and/or deposit insurance mechanisms need to allow quicker reimbursement to depositors in the case of winding up.

Fifth, international integration concerns mostly banking services to large corporate or financial firms. The retail market – personal or SMEs – is mostly a domestic local market because of asymmetric information. In many countries, the domestic incumbents have been able to protect their retail market share. More legislative work appears necessary, not only to harmonize consumer protection laws and national supervisory practices, but also to ensure that national corporate or value-added taxes do not hinder the creation of efficient European firms.

Sixth, the intermediation margin on the retail market has been reduced substantially in most countries. Although this could be caused by efficiency gain and increased competition, it is likely that the major cause has been the overall decrease in interest rate levels, brought about by the introduction of the euro. This has reduced substantially the margins on deposits.

The seventh, and final, observation is that the very large amount of domestic consolidation has increased the level of concentration in several EU countries very considerably. Measures used by antitrust specialists greatly exceed the oligopoly threshold in several countries. Strict monitoring of the degree of competition in the SME market is needed to facilitate the growth of this sector which employs more than fifty percent of the labour force in the European Union.

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**Appendix: Country Tables**

Table 20: Belgium, General statistics

	1981	1985	1990	1995	1999/2000
Population (10 <sup>6</sup> )	9.8	9.9	10.0	10.1	10.3
GDP (EUR 10 <sup>9</sup> )	89	123	166	204	250
Number of banks	120	120	115	143	117
Total banking assets (as % of GDP)	112	252	273	304	313
Claims on non-residents (% of asset)					
BIS total <sup>1)</sup>	NA	42	36	31	36
BIS non-bank	NA	12	10	9.6	14
Liabilities to non-residents (% of asset)					
BIS total <sup>1)</sup>	NA	38.0	39.5	24.0	35.0
BIS non-bank	NA	4.5	6.6	7.9	11.0
Number of branches	3,688	3,656	NA	7,668	6,610
Number of employees (000)	66	71	79	77	76
Concentration <sup>2)</sup> :					
C5	53.4	NA	48.0	59.9	71.6
C10	69.4	NA	65.4	75.7	82.5
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	985,8	1,770
Average inflation rate over previous five years	6.3	7.0	2.1	2.4	1.5

Source: BIS, OECD, Group of Ten (1991), Corvoisier and Gropp (2001). NA= not available.

1) The Bank for International Settlements (BIS) reports the external position vis-à-vis all sectors (BIS total) and vis-à-vis the non-bank sector (BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

Table 21: Denmark, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	5.1	5.1	5.1	5.2	5.3
GDP (EUR 10 <sup>9</sup> )	55	91	118	144	176
Number of Banks	197	166	124	122	100
Total banking assets (as % of GDP)	56	91	95	118	140
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	NA	NA	NA	NA
BIS non-bank	NA	NA	1.6	7.2	7.0
Liabilities to non-residents (% of assets)					
BIS-total <sup>1)</sup>	NA	NA	NA	NA	NA
BIS non-bank	NA	NA	2.0	6.0	5.7
Number of branches	NA	3,302	2,884	2,215	NA
Number of employees (000)	NA	55	55	47	NA
Concentration <sup>2)</sup> :					
C5	62	61	76	74	73
C10					
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	NA	NA
Average inflation rate over previous five years	10.4	7.9	3.9	2.0	2.1

Source: OECD, BIS, IFS, ECB (1999), Danmark National Bank. NA = not available.

1) The Bank for International Settlements (BIS) reports the external position vis-à-vis all sectors (claim BIS) and vis-à-vis the non-bank sector (claim BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

Table 22: Finland, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	4.8	4.9	5.0	5.1	5.2
GDP (EUR 10 <sup>9</sup> )	35	60	80	101	140
Number of banks	655	635	523	351	347
Total banking assets (as % of GDP)	60	86	135	117	86
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	12.1	6.0	10.0	22.0
BIS non-bank	NA	1.3	2.2	1.3	7.0
Liabilities to non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	18.2	23.0	13.6	19.0
BIS non-bank	NA	1.3	1.4	0.4	3.8
Number of branches	2,723	2,934	2,821	1,612	1,268
Number of employees (000)	32.8	37	46.1	30.6	24.4
Concentration <sup>2)</sup> :					
C5 (deposits only)	NA	NA	NA	65	90
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	3,277.9	3,410.9
Average inflation rate over previous five years	10.6	8.3	5.0	2.2	1.3

Source: BIS, OECD, Group of Ten (1991), Suominen (2001), Corvoisier and Gropp (2001).

1) The Bank for International Settlements (BIS) reports the external position vis-à-vis all sectors (claim BIS) and vis-à-vis the non-bank sector (claim BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

NA = not available.

Table 23: France, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	55.2	56.7	58.0	59.3	60.4
GDP (EUR 10 <sup>9</sup> )	439	727	1,009	1,182	1,405
Number of banks	391	360	419	421	366
Total banking assets	76	98	216	240	265
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	33	16	16.7	16.3
BIS non-bank	NA	11.0	3.0	4.2	6.0
Liabilities to non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	27.0	18.0	16.5	16.4
BIS non-bank	NA	3.0	1.7	1.5	1.5
Number of branches	NA	NA	26,124	26,606	26,101
Number of employees (000)	NA	NA	440	408	394
Concentration <sup>2)</sup> :					
C5	NA	NA	51.9 (65) <sup>3)</sup>	52.0 (65)	54.0 (63)
C10	NA	NA	65.6 (73)	62.0 (73)	69.0 (71)
Concentration <sup>4)</sup> :					
Herfindahl	NA	NA	NA	398.4	536.3
Average inflation rate over previous five years	10.4	9.8	3.0	2.3	1.1

Source: BIS, OECD, Group of Ten (1991), Commission Bancaire, Corvoisier and Gropp (2001).

1) The Bank for International Settlements (BIS) report the external position vis-à-vis all sectors (claim BIS) and vis-à-vis the non-bank sector (claim BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) Market share of total bank deposits.

4) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

NA = not available.

Table 24: Germany, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	78.3	77.7	79.4	81.7	82.2
GDP (EUR 10 <sup>9</sup> )	923	1,147	1,483	1,915	2,153
Number of banks	3,087	4,439	3,913	3,500	2,833
Total banking assets (as % of GDP)	103	117	133	169	235
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	11.5	12.0	13.5	17.2
BIS non-bank	NA	2.9	3.0	3.9	7.5
Liabilities to non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	6.8	10.0	13.0	17.2
BIS non-bank	NA	1.9	2.3	3.6	5.6
Number of branches	33,871	38,867	39,576	44,012	40,934
Number of employees (000)	501	546	664	724	723
Concentration <sup>2)</sup> :					
C5	NA	NA	17.1	15.8	19.0
C10					
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	148.4	601.1
Average inflation rate over previous five years	4.0	3.8	1.3	3.6	1.2

Source: BIS, OECD, Group of Ten (1991), Corvoisier and Gropp (2001). NA = not available.

1) The Bank for International Settlements (BIS) report the external position vis-à-vis all sectors (claim BIS) and vis-à-vis the non-bank sector (claim BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

Table 25: Italy, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	56.4	56.6	56.7	57.3	57.7
GDP (EUR 10 <sup>9</sup> )	211	448	727	984	1,242
Number of banks	NA	422	379	271	237
Total banking assets (as % of GDP)	NA	116	117	135	127
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	10.0	7.1	11.0	11.8
BIS non-bank	NA	0.0	0.3	2.0	3.5
Liabilities to non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	10.6	11.0	15.6	15.7
BIS non-bank	NA	0.4	0.9	0.8	1.0
Number of branches	NA	11,626	14,715	20,839	24,048
Number of employees (000)	NA	315	331	337	311
Concentration <sup>2)</sup> :					
C5	NA	NA	NA	33.89	39.3
C10	NA	NA	NA	49.7	56.7
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	323.6	402.2
Average inflation rate over previous five years	16.3	13.8	5.6	5.1	2.4

Source: BIS, OECD, Group of Ten (1991), Corvoisier and Gropp (2001). NA = not available.

1) The Bank for International Settlements (BIS) report the external position vis-à-vis all sectors (claim BIS) and vis-à-vis the non-bank sector (claim BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

Table 26: Netherlands, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	14.1	14.5	14.9	15.5	15.8
GDP (EUR10 <sup>9</sup> )	170	212	273	322	427
Number of banks	86	84	180	174	162
Total banking assets (as % of GDP)	98	115	178	216	NA
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	46.7	31.0	22.0	20.0
BIS non-bank	NA	12.0	8.0	6.0	7.6
Liabilities to non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	35	27	22	23
BIS non-bank	NA	9	8	6	4
Number of branches	5,577	4,786	7,992	6,729	6,792
Number of employees (000)	92	92	123	111	129
Concentration <sup>2)</sup> :					
C5	NA	NA	73.7	76.1	82.2
C10	NA	NA	84	85.6	90.8
C4 payment services households	NA	NA	NA	NA	93
C4 consumer credits	NA	NA	NA	NA	90
C4 payment service/loans SME	NA	NA	NA	NA	97
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	2,058	1,916.6
Inflation rate	6.0	4.2	0.7	2.7	2.0

Source: BIS, OECD, Group of Ten (1991), Canoy et al. (2001), Corvoisier and Gropp (2001).

1) The Bank for International Settlements (BIS) report the external position vis-à-vis all sectors (BIS total) and vis-à-vis the non-bank sector (BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

NA = not available.

Table 27: Spain, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	37.5	38.4	38.9	39.2	39.9
GDP (EUR 10 <sup>9</sup> )	102	189	368	467	649
Production					
Number of banks	357	364	327	318	290
Total banking assets (as % of GDP)	101	130	116	159	151
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	8.9	5.9	15.7	12.3
BIS non-bank	NA	3.1	2.0	3.1	4.2
Liabilities to non-residents (% of assets)					
BIS total <sup>1)</sup>	NA	8.2	9.8	12.1	20.1
BIS non-bank	NA	3.7	4.0	4.4	7.8
Number of branches	25,890	32,700	35,505	36,405	39,091
Number of employees	252,300	243,486	251,587	249,023	48,081
Concentration <sup>2)</sup> :					
C5	38.1	NA	38.3	48.2	NA
C10	56.4	NA	60.2	62.0	61.8
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	376	568
Average inflation rate over previous five years	18.7	12.2	6.4	5.3	2.3

Source: BIS, OECD, Group of Ten (1991), Banco de Espana, Corvoisier and Gropp (2001).

1) The Bank for International Settlements (BIS) report the external position vis-à-vis all sectors (claim BIS) and vis-à-vis the non-bank sector (claim BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

NA = not available.

Table 28: Sweden, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	8.3	8.4	8.6	8.8	8.9
GDP (EUR 10 <sup>9</sup> )	64	108	171	207	243
Production					
Number of banks	598	NA	498	116	126
Total banking assets (as % of GDP)	107	122	173	152	184
Claims on non-residents (% of asset)					
BIS total <sup>1)</sup>	NA	7.0	8.5	10.0	12.0
BIS non-bank	NA	1.6	3.6	2.8	3.4
Liabilities to non-residents (% of asset)					
BIS total <sup>1)</sup>	NA	101.0	243.0	15.0	17.0
BIS non-bank	NA	NA	NA	2.2	2.2
Number of branches	NA	NA	NA	NA	NA
Number of employees	NA	NA	NA	NA	NA
Concentration <sup>2)</sup> :					
C5	NA	NA	62	84	84
C10	NA	NA	76	92	90
Concentration <sup>3)</sup> :					
Herfindahl	NA	NA	NA	NA	NA
Average inflation rate over previous five years	10.5	9.0	6.3	4.4	0.0

Source: BIS, OECD, IFS, Group of Ten (1991). NA = not available.

1) The Bank for International Settlements (BIS) report the external position vis-à-vis all sectors (BIS total) and vis-à-vis the non-bank sector (BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

Table 29: United Kingdom, General statistics

	1980	1985	1990	1995	1999
Population (10 <sup>6</sup> )	56.3	56.7	57.6	58.6	59.8
GDP (EUR 10 <sup>9</sup> )	373	571	898	1,16	1,521
Number of banks	346	NA	507	484	418
Total banking assets (as % of GDP)	100	167	217	237	239
Claims on non-residents (% of assets)					
BIS total <sup>1)</sup>					
BIS non-bank					
Liabilities to non-residents (% of assets)	67	71	49	51	50
Number of branches (large banks)	NA	NA	12,994	10,601	11,274
Number of employees (large banks)	NA	NA	411,500	382,700	409,825
Concentration <sup>2)</sup> :					
C5	NA	NA	43.5	43.6	35.3
C10	NA	NA	55.7	61.5	58.9
C4 money transmission household (%)	NA	NA	NA	NA	74
C4 current account (%)	NA	NA	NA	NA	68
C4 credit card (%)	NA	NA	NA	NA	78
C4 liquidity mgt SME (%)	NA	NA	NA	NA	91
C4 loan SME (%)	NA	NA	NA	NA	84
Concentration <sup>3)</sup> :					
Herfindahl SME	NA	NA	NA	NA	2,410
Average inflation rate over previous five years	14.3	7.2	5.9	3.4	2.6

Source: BIS, OECD, IFS, Group of Ten (1991), Cruickshank (2000), Competition Commission (2002).

1) The Bank for International Settlements (BIS) report the external position vis-à-vis all sectors (claim BIS) and vis-à-vis the non-bank sector (claim BIS non-bank).

2) C5 (C10) is the market share (% of total assets) of the five (10) largest banks.

3) The Herfindahl-Hirschman Index (HHI) is the sum of the squared market shares of each firm in a market. An index of 10,000 indicates that there is only one firm.

NA = not available.



## Comment

Harry Huizinga\*

Reviewing two decades of data, Dermine by and large paints a picture of increasing banking market integration in Europe. Lower costs of cross-border payments, increased cross-border deposit holdings by non-financial depositors, and higher market shares of foreign banks all point towards the emergence of a full-fledged European banking market. Foreign banks, however, primarily take the form of subsidiaries rather than branches (as measured by assets, see Dermine's Table 9). This is surprising, as one expects branches to be simpler and cheaper to operate than subsidiaries. Banks may all the same prefer subsidiaries, if these produce a relatively low tax and regulatory burden for them. This would again be surprising, as the Second Banking Directive of 1989 grants a branched international bank the deemed benefit of being able to operate throughout the EU under the single home-country regulation and supervision. At any rate, the prominence of international subsidiaries, subject to host country control, suggests that relatively little has changed since the early 1980s when host country control still characterised all cross-border bank regulation and supervision.

In my comments, I first summarise how the assignment of the main banking policy responsibilities to home and host countries differs for branches and subsidiaries. Then I review some of the policy-related reasons why banks may prefer subsidiaries, as mentioned in Dermine's Section 2. A potentially important, although difficult to quantify, influence on the overall tax and regulatory burden on banks is the expected value of a public bailout in case of financial distress. Second, I go somewhat beyond the scope of Dermine's paper to examine how the revealed preference for subsidiaries affects tax and regulatory policy interdependence in Europe. The dominance of subsidiaries may at present have a dampening effect on tax and regulatory competition in the EU, even if there are signs that such competition is eroding the overall tax and regulatory burden on EU banks. Policy proposals, such as Dermine's call for involving EU-level institutions in international financial crisis management, should be evaluated as to whether they help to bring about the "right" overall tax and regulatory burden in the EU.

### **The Assignment of Banking Policy Responsibilities in the EU**

Subject to EU directives, countries independently set key aspects of bank regulation, such as the precise nature of their deposit insurance systems and their corporate tax and value-added tax (VAT) policies. Policy-making responsibilities are divided differently between home and host countries for international branches and subsidiaries (see also Mayes and Vesala (2001)).

As seen in Table 1, branches are subject to home country control for the main bank regulation and supervision categories of capital adequacy, other prudential regulation (such as large exposure rules), and deposit insurance. The provision of liquidity assistance is a main exception, as it is the primary responsibility of the national or host country central bank. In case of financial distress, the supervisor who exercises consolidated control, i.e. the home

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country supervisor, will be the co-ordinating supervisor, and the home country treasury presumably is first in line to contribute risk capital and other types of support to a distressed international bank with branches. In practice, the co-ordinating supervisor is likely to call upon the host country treasury to contribute to a bailout, if a substantial share of a bank's business is conducted through branches in the host country. The bailout of an international bank with branches thus may turn out to be a mixed responsibility.

Responsibilities are also mixed in the area of corporate income taxation. The host country has a first right to tax the income of any branches operating within its territory, but the home country generally also subjects any foreign-source income generated by its international branches to taxation. To mitigate the double taxation of cross-border bank income, the home country may provide the parent bank with foreign tax credits or deductions from taxable income for host-country taxes. The VAT is mostly a responsibility of the host country. Specifically, financial services undergo the VAT of the "production" country. The host country in fact does not charge VAT on financial-sector output, but instead requires banks within its territory to produce financial services with intermediate and capital inputs that are VAT-paid in the host country (this is the essence of the current VAT-exemption of financial services in the EU).

For subsidiaries, the picture is significantly different, as seen in Table 1. In fact, a subsidiary is subject primarily to the regulatory and supervisory regime of the host country. In case of financial distress, the host country supervisor is the co-ordinating supervisor and the host country treasury is first in line to provide public financial support. Responsibilities in the case of corporate income taxation and VAT are largely the same as before, even if there may be differences in their implementation that may affect the choice between branches and subsidiaries.

Table 1: Assignment of banking policy responsibilities for international banking

	Host country control	Home country control	Mix
<b>A. Branches</b>			
Capital adequacy		X	
Other prudential regulation		X	
Deposit insurance		X	
Liquidity assistance	X		
Treasury support in case of distress		X	or X
Corporate income tax			X
VAT	X		
<b>B. Subsidiaries</b>			
Capital adequacy	X		
Other prudential regulation	X		
Deposit insurance	X		
Liquidity assistance	X		
Treasury support in case of distress	X		
Corporate income tax			X
VAT	X		

### **Should an International Bank Opt for a Branch and a Subsidiary?**

In choosing between a branch and a subsidiary, a bank presumably aims for the highest profit to be achieved by the lowest total tax and regulatory burden. In doing so, banks will realise the quasi-fiscal nature of a large part of bank regulation and supervision. Deposit insurance is a rather direct quasi-fiscal measure, for instance, as it combines a tax-like insurance premium with a (public) deposit guarantee. Bank regulation and supervision that affect bank stability also have fiscal implications, as they affect the chance of gaining access to deposit-insurance funds or even to tax payers' money in case of a public bail-out. Public bailouts, when they occur, are fiscal transfers to the banking system that reduce the overall tax and regulatory burden on banking. Hence, banks need to determine which legal structure implies the lowest combined tax and regulatory burden on their international activities.

Dermine mentions the different corporate tax treatments of branches and subsidiaries as determinants of the legal-structure choice. Specifically, international banks are more likely to receive cross-border loss-compensation for foreign branches than for subsidiaries in calculating the parent company's tax liability. This is true, as member states generally provide immediate loss-compensation in the case of branches, while only two member states (Denmark and France) do so for subsidiaries (see European Commission (2001a)). This asymmetric tax treatment of branches and subsidiaries, however, tends to favour branches, and hence cannot explain the preference for subsidiaries. All the same, the limited loss-compensation of foreign subsidiaries is a serious barrier to cross-border investments. As part of its strategy in the area of company taxation, the European Commission (2001b) has announced its intention to table legislative measures to improve loss-compensation availability for cross-border activities by the end of 2003. The best solution to this problem would be the introduction of a common tax base for internationally active companies and groups of companies. Such a common tax base for company taxation in Europe is a long-term goal of the European Commission (2001b).

Dermine also mentions that the tax system may discourage the creation of an international network of branches through mergers and acquisitions, if such corporate restructurings trigger the imposition of capital gains taxes (on the assets of the acquired firm). The Merger Directive of 1990, however, has been created to preclude the imposition of capital gains taxes precisely in these circumstances. Thus, the prospect of additional capital gains taxes should not categorically deter the creation of internationally branched banks. In specific circumstances, the Merger Directive, as it stands, may not be able to prevent the imposition of capital gains taxes as it, for instance, precisely delineates the legal forms of companies to which it applies. This means that companies under a legal form that did not exist in 1990 cannot benefit. Shortcomings of this nature should be eliminated, and the European Commission (2001b) intends to propose amendments to extend the Merger Directive in 2003.

Corporate income taxation, in summary, may affect legal structure in specific cases, but it is unclear that it can explain a general tendency for international banks to prefer subsidiaries. The VAT equally cannot explain a general tendency to prefer either branches or subsidiaries.

How do bank regulation and supervision affect the legal structure of international banking operations? These areas of banking policy are potentially important, as the distinction between branches and subsidiaries in this respect appears to be most pronounced: Branches, roughly, are the joint responsibility of home and host country supervisors, while subsidiaries are mainly the responsibility of host country supervisors. As a result, branches may well end up with a relatively high net tax and regulatory burden, in parallel to the "problem of the commons". This would explain why banks choose to establish subsidiaries.

Does bank regulation and supervision really put higher burdens on branches than on subsidiaries? Dermine mentions that the cost of deposit insurance can affect the legal structure choice, as branches (subsidiaries) contract deposit insurance in the home (host) country. Deposit insurance premiums are not regulated by the EU Deposit Insurance Directive of 1994, and in practice differ widely in Europe (see Table 2). Deposit insurance thus is likely to be a key factor in any legal structure choice, even if these premium differences cannot explain the observed general preference for subsidiaries.

Table 2: Deposit insurance premium assessment

Country	Assessment base	Annual premium in percent
Austria	Insured deposits	Pro rata, ex post
Belgium	Insured deposits	0.02 plus 0.04 if necessary
Denmark	Insured deposits	0.2 (maximum)
Finland	Insured deposits	0.05 to 0.3
France	Deposits plus 1/3 Loans	Risk-adjusted
Germany	Insured deposits	0.008 (statutory scheme); 0-0.1 (private sector)
Greece	Deposits	Decreasing by size: 0.0025 to 0.125
Ireland	Insured deposits	0.2
Italy	Insured deposits	Ex post, adjusted for size and risk
Luxembourg	Insured deposits	Ex post to a maximum of 5% of capital
Netherlands	Insured deposits	Ex post to a maximum of 10% of capital
Portugal	Insured deposits	0.08 to 0.12
Spain	Insured deposits	0.1 (maximum of 0.2)
Sweden	Insured deposits	0.5 (maximum)
United Kingdom	Insured deposits	On demand, not to exceed 0.3

Source: Laeven (2002, Annex).

Finally, we should consider how the prospective behaviour of banking authorities during crisis management may affect the choice between branches and subsidiaries. Banking crises tend to be very costly to national governments. The potential costs of a major bank failure in Europe are confirmed by Dermine's calculations of the size of the capital of large banks relative to GDP in his Table 16. History also shows that the public cost of resolving a banking crisis can be substantial. In the last three decades alone, Finland, Spain and Sweden have all seen systemic banking crises, each with a cost of between 5 and 8 percent of GDP (see Table 3). The large public outlays at times of financial crisis imply that financial crisis resolution is a major factor in determining the overall tax and regulatory burden on the banking system.

Table 3: Episodes of systemic banking crisis

Country	Period	Cost of recapitalisation (percent of GDP)
Finland	1991 - 93	8.0
Spain	1977 - 85	5.6
Sweden	1991	6.4

Source: Caprio and Klingebiel (1996).

The Directive on the Winding-Up of Credit Institutions of 2001 states that the bankruptcy laws of the home country apply in case of a bankruptcy of a bank with international branches and, more importantly, that all the bank's creditors have to be treated equally. A bank with an international branch network tends to have international creditors, which makes paying off these creditors an international public good. Decentralised crisis management concerning an international bank with branches would naturally lead to an underprovision of this public good, and hence a lower chance of a generous bailout following distress.

European policy makers are only recently focusing their full attention on the potential problems of international financial crisis management in Europe. Economic and Financial Committee (2001), specifically, lays out the responsibilities and duties of the international authorities concerned (supervisors, central banks, and national treasuries). The home country supervisor is the co-ordinating policy-maker for a distressed international bank with branches, while the host country supervisor co-ordinates policy towards a subsidiary in crisis. An adequate flow of information among public institutions is crucial, especially in the case of a branched firm. Currently, the bilateral exchange of supervisory information is usually arranged in Memoranda of Understanding, but these MoU's generally do not cover the special information needs in case of a financial crisis. Enria and Vesala (forthcoming) discuss the standardisation of MoU's in the EU and binding commitments to exchange information as avenues to improve the flow of information among national authorities. Efforts along these lines, however, face the difficulty that the information required to resolve the next financial crisis may be difficult to define in advance and that international agreements to exchange supervisory information are difficult to enforce.

In practice, national authorities, therefore, are likely to retain some discretion in each financial crisis regarding the information to be shared. Presumably, national authorities will use this discretion to affect the outcome of the crisis management in their favour. Thus there is a tension between a co-operative supervisory model with unhampered information exchange in the EU and national incentives to keep their domestic public outlays at a minimum.

The asymmetric information and divergent interests that characterise international financial crisis management suggest that the tools of game theory could be useful to help predict crisis management outcomes. Ideally, we wish to know how international crisis management would differ from purely domestic crisis management in whether a bank is allowed to fail and, if not, what would be the timing, the amount, and the sharing of the public money provided.

In this vein, Holthausen and Rønne (2001) consider bank closure decisions in a two-country model where the home and host country authorities have different incentives to rescue an international bank, as the home-country deposit insurance agency also covers deposits in the host country. Bank supervisors in the two countries receive independent "signals" about the quality of the bank's assets. The host country has to decide whether to reveal its information to the home country cognisant of how information exchange may affect the home country's closure decision. Holthausen and Rønne (2001) conclude that the home country supervisor may err on the side of closing down a bank either too early or too late.

Erroneous closure timing decisions are likely to imply inappropriate amounts of money spent to resolve a financial crisis. Holthausen and Rønne (2001) do not explicitly address the cost aspect of crisis resolution, but the presumption is that decentralised financial crisis management leads to too little money spent on average to resolve a crisis. The main reason, as indicated, is that the Directive on the Winding-Up of Credit Institutions does not allow national authorities to discriminate against foreign creditors in a publicly financed bank

bailout. Any money spent in crisis resolution by a national treasury thus have to benefit the bank's national and foreign creditors equally.

The expectation that decentralised crisis management leads to an underprovision of funds is strengthened, if we note that international financial crisis management is a rare event that finds changing sets of countries at the negotiating table. Hence, there is unlikely to be the kind of repeated interaction that would allow countries to build a reputation for being a good partner in financial crisis containment by contributing generously to financial crisis resolution.

The balance sheets of subsidiaries, unlike those of international banks with branches, primarily reflect local deposits and perhaps borrowing in the local capital market. This type of geographical concentration of the bank's creditors and presumably also of its loan customers provides the host country authorities with relatively strong incentives to bail out the subsidiaries of international banks. In summary, the presumption that subsidiaries are treated relatively favourably in an international financial crisis may be a factor leading banks to prefer subsidiaries to branches.

### **How Does a Preference for Subsidiaries Affect Policy Interdependence?**

The degree of banking policy interdependence regarding cross-border banking is affected, first, by the international assignment of policy responsibilities (i.e., the issue of home country control vs. host country control) and, second, by the strength of international linkages regarding trade in financial services and international credit exposures. This is represented schematically in Table 4. This table distinguishes between the cases where (i) (all) international bank operations are organised as branches (and hence are subject to home country control) and (ii) as subsidiaries (and hence are subject to host country control). Also, a distinction is made between (i) the presence of substantial international trade and financial linkages and (ii) no such linkages. From the table, it is apparent that there is no banking policy interdependence if there is host country control and there exist no international linkages. In every other case, there is some kind of policy interdependence. Two types of policy interdependence can now be distinguished:

policy interdependence stemming from the interaction of foreign branches (subject to home country control) and domestic firms (subject to their home country control) in the host market,

and

policy interdependence stemming from the interaction of national banking systems (subject to their home country control) in the international market place.

Table 4: Is there banking policy interdependence?

	Host country control	Home country control
International trade and financial linkages	Yes	Yes
No linkages	No	Yes

The prominence of subsidiaries tends to weaken policy interdependence of the first kind. Policy interaction regarding banks operating in the same banking market or in the international banking market differs, and hence it is useful to sketch the two types of policy interdependence separately, as done below.

### **Policy Interdependence within a Single Banking Market**

As already mentioned, policy makers need to co-ordinate their actions to resolve a financial crisis involving the foreign branches of an international bank. A second aspect of banking policy affected by the presence of foreign branches is deposit insurance. Foreign branches are subject to the deposit insurance scheme of their home country and hence pay the deposit insurance premium charged by the home country deposit insurance scheme. This implies that a low deposit insurance premium can be an effective tool to aid the foreign branches of domestic parent banks in their competition with banks in the host country. Banks subject to a low deposit insurance premium will be able to pass on this advantage to their depositors in the form of higher deposit interest rates, which should allow them to capture market share.

Huizinga and Nicodème (2002) report regression results indicating that the deposit insurance premium and other deposit insurance system features affect the location of bank deposits internationally. This suggests that deposit insurance can be an effective instrument of banking system competition for at least international customers. Regulatory competition in the area of deposit insurance could be considered undesirable if it leads to deposit insurance premiums that are too low given the expected liabilities of the deposit insurance scheme. To check this, Laeven (2002) calculates “fair” deposit insurance premiums for a large set of countries using several methods and compares these with actual premiums. Deposit insurance premiums in Germany – both public and private – appear to be less than what would be fair. In Austria, Italy, Luxembourg and the Netherlands, however, the deposit insurance assessment is contingent on losses occurring in the system, which complicates Laeven’s analysis. Ex post assessment would generally occur at times when the banking system is under severe stress, and hence may turn out to be impracticable. This suggests that countries with ex post assessment may subsidise their banks through cheap deposit insurance.

Tax policies, and in particular corporate income taxes and the VAT, appear to be ill-suited as instruments to affect the competition between foreign branches and domestic banks in the same banking market. These instruments tend to be too blunt to distinguish between domestic and foreign banks.

All the same, foreign banks may in practice face lower corporate income, and perhaps VAT burdens, if they have relatively ample opportunity to reduce host-country taxes through the manipulation of international transfer prices. There is some evidence that foreign banks in the EU indeed face lower taxes than domestic banks. Specifically, using bank-level data for the 1988-1995 period, Demirgüç-Kunt and Huizinga find that foreign banks in 5 EU member states (Austria, Belgium, Italy, Spain and the United Kingdom) pay significantly lower taxes than domestic institutions (these results are reproduced in Table 5). This finding may be due to the ample profit shifting opportunities available to foreign banks, or it may reflect that foreign banking operations are relatively unprofitable – perhaps due to insufficient information about foreign market conditions.

Table 5: Impact of foreign ownership on taxes

The dependent variable is taxes paid as a percentage of assets. Regressions also include equity, loans, fixed assets, customer and short term funding and other interest-bearing funding (all divided by assets) and time dummies all of which are not reported. The foreign dummy denotes foreign ownership share of at least 50 percent.

Country	Foreign dummy		Adj. R2	N
Austria	-.087**	(.037)	.39	58
Belgium	-.078**	(.033)	.12	178
Denmark	.215	(.193)	.37	176
France	-.039	(.031)	.10	391
Germany	-.046	(.055)	.35	140
Greece	.152	(.095)	.24	70
Ireland	-.092	(.116)	.90	9
Italy	-.238***	(.077)	.30	219
Luxembourg	.027	(.024)	.08	266
Netherlands	-.053*	(.030)	.26	153
Portugal	.103	(.107)	.65	99
Spain	-.311***	(.036)	.50	257
Sweden	-.236	(.192)	.21	86
United Kingdom	-.101**	(.048)	.14	300

\*, \*\*, \*\*\* indicate significance levels of 10, 5 and 1 percent, respectively.

Source: Demirgüç-Kunt and Huizinga (2001), Table 5.

### Policy Interdependence in the International Banking Market

Banking systems have to compete in the international banking market, if bank customers are willing to turn to banks located abroad for their banking services. Similarly, banking policies will have international repercussions, if banks are linked internationally by way of significant credit exposures or cross-holdings of shares. Hence, a recurring question regarding international banking policies is whether and to what extent the European banking market is already integrated. This was a main question in the report by the Economic and Financial Committee (2000) on financial stability, and it is a pervasive theme of the Dermine paper.

The Economic and Financial Committee (2000) reports that large European banks obtain 38 of their income from foreign sources (with equal shares from Europe/EU and non-Europe/EU). As further evidence of bank market integration, Galati and Tsatsaronis (2001) report that international bank claims inside the euro area rose from a plateau of around \$ 650 billion in the 1995-97 period to more than \$ 900 billion after 1999. Consistent with this, Dermine reports that the costs of cross-border payments have come down on average between 1993 and 2000, although they remain high in some instances (Dermine's Table 6). The recent work by Berger et al. (2002) showing that the foreign affiliates of multinational firms tend to prefer local banks to do their cash management, however, suggests bank market integration is still far from complete. Evidence like this can be used to conclude that banking market integration is already substantial in Europe, or conversely that banking market integration is not yet on a scale as perhaps anticipated before. Regardless, bank market integration in Europe is almost certain to increase substantially in the decades to come. Hence, it makes sense to anticipate the days when bank market integration will be much advanced.

Are there signs that national authorities adjust their policies towards banking to attract the foot-loose international banking customers? One area where international bank competition

may already have affected policy is the VAT. To see how countries could compete in this area, it is necessary to briefly review the VAT treatment of financial services in the EU. According to the Sixth VAT Directive of 1977, most financial services – such as depositing and lending – are exempt from normal VAT, which is to say that no VAT is assessed on the value of these services. To compensate for the absence of a VAT on bank output, banks cannot claim VAT input credits for the VAT embodied in the prices of their purchased intermediate and (physical) capital inputs either. Thus, the VAT-exemption of most financial services in the EU effectively replaces a VAT on bank-level output with a VAT on some bank-level inputs (intermediate inputs and physical capital inputs).

Some financial services, such as safe keeping and advisory services, remain subject to normal VAT on the output, while VAT-inputs are granted for the inputs used. Most banks produce a combination of exempt financial services and normally taxed financial services. As VAT input credits in principle are only available for inputs used to produce normally taxed financial services, banks in practice have to determine which share of a bank’s inputs is used to produce exempt financial services and which share is used to produce taxable financial services. Guidelines on how to do this are difficult to comply with, and even more difficult to enforce for VAT administrations.

The inherent ambiguities in current VAT administration provide the tax authorities with some discretion to determine the effective level of VAT on their banking systems – independently of the statutory VAT rate relevant for the overall economy. They seem to use this discretion to impose rather low effective VAT on their banking systems (see Huizinga (2002)). In particular, the VAT input credits granted to banks in Europe in practice appear to be much higher than expected on the basis of actual input use (see Table 6).

Table 6: Estimates of inputs into the banking system subject to VAT (with no input credits available) as a share of VAT-exempt output

Method	Share in percent
Sectoral national accounts data for the banking sector are used to identify the purchases of intermediate inputs and physical capital by the entire banking sector. These bank inputs are divided by total bank output (of exempt and normally taxed financial services) to get an estimate of the inputs into bank production – as a share of bank output - for which no VAT input credits are available. Data are for 1998.	41.7
In-depth study of 9 financial institutions carried out for the European Commission during the 1996-1998 period. This study uses bank-level data to directly identify the share of inputs going into the production of exempt financial services for which no VAT credits are available (even though the producers of these inputs were subject to VAT).	16.5

Source: Huizinga (2002).

This finding may to some extent result from effective political pressure by banks, but the most logical explanation is that tax administrators choose low effective VAT on their banking systems to give domestic banks a competitive advantage in their competition with banks located abroad. The VAT may be a better instrument to achieve this goal than the corporate income tax, as it is difficult to use the corporate income tax to affect the effective level of taxation of the banking sector or any other particular sector for that matter.

### **The Tax and Regulatory Burden on EU Banking: Past, Present and Future**

Taking a similarly long view as Dermine, what can we say about the development of the tax and regulatory burden on banking in the EU?

Starting with the early 1980s, many European countries still made use of very restrictive financial regulation in the form of controls of interest rates, capital controls and mandatory investment restrictions (see Dermine's Table 1). Such measures have the effect of forcing domestic savers to accept below-market interest rates offered by domestically located financial institutions, which in turn are left to invest in domestic securities and, in particular, in domestic government debt. Financial repression of this kind thus allows governments to finance their debts relatively cheaply, implying a relatively high implicit taxation of savings and of the financial system. Hence, Europe's banking system entered the 1980s in a state of overtaxation and overregulation.

Due to financial liberalisation and banking market integration, the picture may well be exactly opposite in the future. Low deposit insurance premiums and a low VAT on banking already contribute to a relatively low tax and regulatory burden on banking in the EU at present. Banks' preferences for subsidiaries currently may serve to dampen banking system competition somewhat, enabling policy makers to sustain somewhat higher tax and regulatory burdens than would otherwise be possible. The trend towards globalisation, however, is likely to continue and hence the competition-dampening influence of subsidiaries may turn out to be temporary. Of course, regarding the future there are several important unknowns.

One uncertainty concerns the future course of EU banking policies. Will EU policy makers be able to find a middle ground between over- and undertaxation and regulation? Some level of systems competition, subject to appropriate EU-wide common tax and regulatory standards, should be able to produce the desired outcome (analogous to the analysis of Edwards and Keen (1996) who show that some limited tax competition may produce appropriate levels of taxation).

In the future, there may be a greater danger of erring on the side of too little taxation and regulation than too much. Hence, it is desirable to critically review those areas where at present EU banking directives leave countries with some discretion to see whether this discretion is used to lower regulatory burdens too much. Perhaps a useful role in this review can be played by any newly created EU-wide committees dealing with EU banking regulations that are currently under discussion in the ECOFIN (see the press release of Economic and Financial Council (2002)). Such committees would be along the lines of the two committees presently dealing with securities markets regulation – the European Securities Committee and the Committee of European Securities Regulators – created in 2001 following the recommendations of the Committee of Wise Men under the chairmanship of Lamfalussy (see European Commission (2001c)).

An example of a policy to be reviewed by committees along these lines would be the assessment of deposit insurance premiums in the EU. Such a review could lead to the recommendation of a minimum deposit insurance premium. Any increases in quasi-fiscal revenues gained in this way could in part be used to build or strengthen a deposit insurance fund and, beyond a certain level, be turned over to national treasuries. Another area to consider for the EU is reform of the current VAT treatment of financial services. Reform could make the operation of the banking system more efficient and, in addition, it would yield positive VAT revenue in the EU of around € 15 billion annually, if it leads to the application of standard-level VAT on the banking sector (see Huizinga (2002)).

An important final issue, also considered by Dermine, is how to assign policy-making responsibility in the case of an international banking crisis. Dermine favours decision-making at the European level; specifically, he suggests that the appropriate forum would be a joint meeting of the ECOFIN and the ECB. Such a European approach to financial crisis management has the benefit that the EU-wide repercussions of any crisis resolution are likely to be taken into account, and that decision-making is more likely to be based on a broad set of relevant information.

The internalisation of international externalities in the EU by itself is likely to lead to a more generous provision of public funds in times of financial crisis. Conversely, the transfer of crisis management responsibilities to an EU forum can help control the cost of crisis management, if EU-level decision makers are less responsive to national banking interests. Also, EU-wide financial crisis managers may in practice encounter financial crises more often than their national counterparts at present. Hence, EU-level financial crisis authorities may be better able to build a reputation for being tough on distressed banks. Toughness of this kind is desirable as it provides bank managers with appropriate incentives to keep bank-level risk in check. On net, an EU body thus may do a better or a worse job of keeping the expectations of bailout support low in the minds of bank managers.

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## Comment

Eric Rosengren

Jean Dermine is to be complemented on a comprehensive overview of European banking. The paper provides an important summary of the current structure of European banking, how that structure is likely to change, and implications of those changes for public policy. In particular, he has very interesting observations on how European banks are structuring their holding companies as they expand geographically across Europe, and why convergence to a more unified European banking market is not occurring more quickly. I will first expand on Dermine's observations and compare them to the U.S. experience with bank mergers and convergence to a more unified banking market. Second, I am going to discuss risks to the European banking system. Some of the major risks include the impact of deregulation and less macroeconomic policy flexibility on banks, problems associated with home/host shocks on global banks, and changes likely to occur as banks adopt increasingly sophisticated risk management. Finally, I will discuss the policy challenges created for Europe as it seeks to minimize the risks posed by rapidly evolving banking markets.

### Integration of Banking Markets and Bank Structure

Dermine provides evidence that despite efforts to provide a more integrated European banking market, progress remains quite slow. He cites evidence that prices for similar products continue to have country specific prices, that retail-banking markets are dominated by domestic banks, and that cross-border activity, while growing, is not very significant in most countries. An obvious question is whether this pattern is a result of significant country specific differences or the inability of policy to truly provide a level playing field.<sup>1</sup>

Looking at evidence from the United States may provide some insight into this question. Despite the ability of U.S. banks to engage in interstate banking and interstate branching, the United States retail market remains significantly fragmented. In fact, no bank has major retail operations in all regions of the country and only 6 percent of banks operate in more than one state. As an example, Table 1 provides a list of the bank holding companies with deposits greater than \$5 billion in New England. New England is a fairly cohesive group of states with gross state product in 2000 of \$583 billion. What is striking about the table is the absence of the largest U.S. banks in New England, with none of the five largest banks having major representation in this area.<sup>2</sup> In fact, Fleet Financial Group, the largest bank with \$191 billion in assets, was formed through the mergers of most of the large New England based banks, limiting the ease of entering New England through the purchase of a large bank. The lack of penetration from outside the region is particularly surprising given the close geographic proximity to New York, which has the largest representation of large complex banks of any state. Why has there been so little interstate activity despite very homogenous U.S. banking markets?

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<sup>1</sup> Berger, Dai, and Smith (2000) argue that full globalization is unlikely. Instead some business lines that rely on relationships will remain local while others will become globalized.

<sup>2</sup> Several other regions have little outside penetration. For example, in the East South Central Census Region (which includes the states of Kentucky, Tennessee, Mississippi, and Alabama) the top ten banks in the region do not include any of the five largest U.S. banks. Similarly in the East North Central Census Region (which includes Illinois, Wisconsin, Michigan, Indiana and Ohio) the top ten banks do not include any of the five largest U.S. banks.

Table 1: New England bank holding companies with more than \$5 Billion in New England deposits

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Fleet Financial
Royal Bank of Scotland Group plc
Providian Corp
State Street
Banknorth
Sovereign Bancorp
Peoples Mutual
Webster Financial
Memo: Largest U.S. Bank Holding Companies
Citigroup
J.P. Morgan Chase & Co.
Bank of America Corp
Wachovia
Wells Fargo & Co.

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Source: Regulatory Reports.

While institutional reasons are undoubtedly important, strong economic forces impede unification of banking markets. Establishing banking institutions throughout the U.S. is most easily done through acquisition. An acquisition requires an auction for corporate assets. Similar to the argument that Froot and Stein (1994) applied to FDI, an auction for a bank is more likely to be won if the target bank provides significant synergies with the acquirer. This favors in-market mergers where banks can achieve significant cost savings by reducing redundant branch networks, underwriting activities and monitoring of local credits. The present discounted savings provide an in-market acquirer the ability to bid more for the target bank. In addition, acquiring an in-market competitor limits the entry points for well-capitalized out-of-market competitors, and by eliminating a competitor may provide more market power for the acquiring bank, at least in some markets. Again, the discounted value of greater market power will be capitalized into the bid of in-market banks but cannot be captured by an entrant from outside the region. Given these economic factors, it is not surprising that most U.S. banks have sought consolidation in their local market before expanding outside the region, even without some of the regional differences that occur in Europe.

Additional evidence that banking markets remain fragmented is rooted in the bank's choice of industrial structure. In fact, European cross-border activities are often conducted through subsidiaries that do not benefit from many policies aimed at increasing regulatory uniformity. By choosing a subsidiary structure, each subsidiary is treated as a local bank. Dermine is to be commended for a very thorough investigation into why banks are choosing a subsidiary structure versus a corporate structure with numerous branches. He seeks to catalogue the potential reasons for the subsidiary structure into three areas: transitional, business related, and incomplete integration.

Some insight into the importance of these three reasons for corporate structure in Europe can be garnered from U.S. experience. Table 2 provides the number of subsidiary banks in the eight largest domestic U.S. holding companies in 1994 and 2002<sup>3</sup>. Over that period, holding

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<sup>3</sup> We took the ten largest banks as of 10/15/02 and then looked at their component parts as of 12/31/93, before interstate branching was permitted. Thus, the 1993 bank includes those banks that were merged into the current bank between 1993 and 2002.

Table 2: Subsidiaries of major U.S. bank holding companies

BHC Name	Subsidiaries	Subsidiaries
	As of 10/15/2002	As of 12/31/1993
Citigroup	9	16
J.P. Morgan Chase & Co	3	8
Bank of America Corp	9	19
Wachovia Corp	5	8
Wells Fargo & Co	28	85
Bank One Corp	11	83
FleetBoston Financial Corp	3	7
US Bancorp	2	9
Total	70	235

companies have expanded into more activities and expanded across state lines through acquisitions. However, in contrast to European banks, U.S. banks have significantly reduced their number of subsidiaries. In addition, an analysis of the activities of the subsidiaries frequently relates to different business needs rather than a geographic rationale for the subsidiary structure.<sup>4</sup> Given the significant reduction in geographically determined subsidiaries, it is likely that this choice of structure does reflect more incomplete integration in Europe than in the United States.

### Risks to European Banking

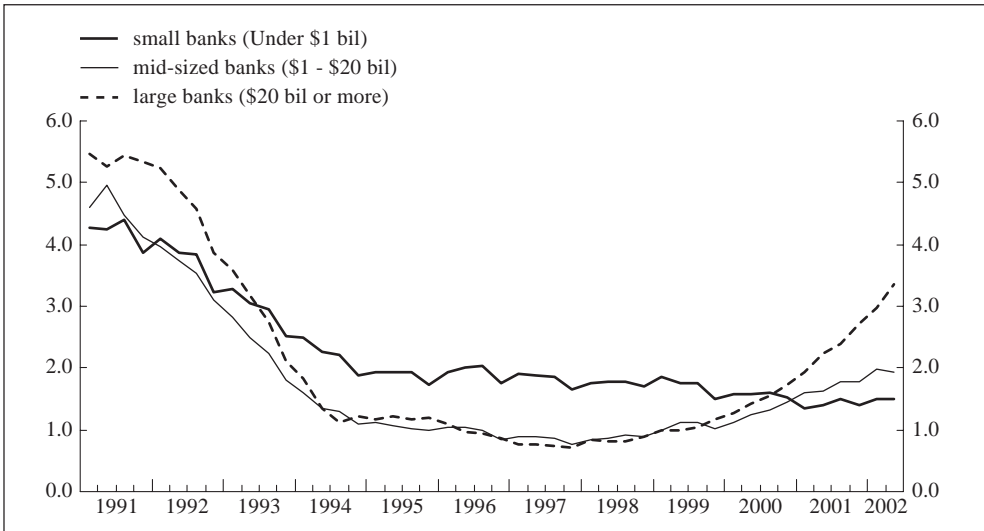
The evolution of European banking is likely to be significantly shaped by reactions of banks and their supervisors to changes in risks related to banking. Two environmental risks stand out. First, the deregulation of banking and financial markets is likely to change the comparative advantages of banks. Second, banks may experience more volatility in their markets with the loss of macroeconomic flexibility as a result of a single currency.

Deregulation has the ability to stimulate competition, increase the quantity and quality of services provided by banks, and encourage innovation. It also can lead to a more diversified and less risky banking environment. However, some research has found deregulation of financial and banking markets has been associated with currency and banking crises. Much of this association reflects deregulation in emerging markets where financial infrastructure was in its infancy (Caprio and Klingebiel, 1999). Nonetheless, deregulation and increased competition have been associated with problems in the banking system in both Japan and the United States. Hoshi and Kashyap (2000) observe that the opening of the bond market caused investment grade credits to migrate from the banking system, leaving banks with the higher risk credits. Keeley (1990) argues that the increase in bank failures in the 1980s and 1990s in the United States is in part the result of loss of franchise value associated with increased competition.

An example of these trade-offs is shown in the figure below. This economic downturn in the United States has been unusual in that most of the credit problems have been concentrated

<sup>4</sup> For example, state laws are often structured to provide tax or other legal advantages for incorporating certain activities in that state. For example, many banks have created credit card banks in Delaware and captive insurers in Vermont to take advantage of favorable legal treatment.

Figure: Delinquency rates for commercial and industrial loans at U. S. banks, by asset size  
(percent at quarter end)



at the largest institutions. Thus, the delinquency rate for commercial and industrial loans has increased significantly at banks with \$20 billion or more in assets, but has continued to decline at small banks. This reflects large bank concentrations in providing syndicated loans, particularly to the high technology and communications industry. As these industries became troubled, small banks were relatively unaffected while large banks reported significant credit losses. However, despite the large losses, the banks were well enough capitalized and diversified enough that the problems have remained an earnings rather than a capital concern. Thus, large banks did move into large loans to rapidly growing industries with inadequate protection, but, deregulation also resulted in having better-diversified well capitalized banks that could weather such shocks.

European banks are likely to feel similar stresses as the barriers to entry are reduced. Competition is likely to increase as banks in Europe and the U.S. consider expanding beyond their borders. In addition, competition is likely to increase from non-bank financial intermediaries that view traditional banking products as natural extensions of their own business. Increased competition among financial firms, and greater access to capital market financing, are likely to cause investment grade credits to be traded as commodities. Banks will increasingly need to search for new financial instruments, more complex financial strategies, higher risk borrowers or more customized products to maintain profitability. Such strategies will require European banks that have been sheltered from competition in the past to improve their risk management and become more adaptable.

A second environmental risk, which is noted by Dermine, is that the fixed exchange rates in Europe will reduce the macroeconomic flexibility to respond to regional shocks. While a similar problem exists in the United States, the greater mobility of labor and capital, and the ability to make fiscal transfers provides a greater shock absorbing capacity than currently exists in Europe. In addition, the fiscal problems created by regional bank failures were borne by taxpayers throughout the United States, while such spreading of loss is unlikely under

current institutional arrangements in Europe. The implication of this loss of flexibility is that European banks should have higher probabilities of default and greater losses given default on credits than appears in their historical data. Higher credit risk should result in banks holding higher capital than they have traditionally. This is particularly true for banks that are not diversifying geographically.

### Importing Credit/Capital Crunches

Many European banks are aggressively expanding outside the borders of Europe. While this can potentially provide higher return opportunities and provide more diversification, it can also cause host country shocks to reverberate back to Europe. One recent example is the experience of the two primary banks in Ireland that both chose to expand in the United States. Bank of Ireland had a major presence in New England, which was adversely effected by the collapse in real estate prices in New England in the early 1990s. More recently, the Allied Irish Banks experienced a significant operational loss from rogue trading in its U.S. subsidiary. Thus, the two major banks in Ireland experienced significant difficulties as a result of their U.S. expansion.

A second example is provided by the expansion of Spanish banks in Latin America. These banks have experienced significant losses in Argentina, and continued fragility in Latin American economies could expose those banks to even greater losses. While these are only two examples, such examples are likely to be more common as European banks continue their global expansion.

Table 3 shows the six largest foreign banking organizations in the United States. These operations include the total assets from branches, subsidiary banks, edge corporations and nonbank subsidiaries.<sup>5</sup> Particularly striking is that UBS has total U.S. assets of \$483 billion which is 65 percent of its global assets and Deutsche Bank with \$422 billion in U.S. assets has 52 percent of its global assets in the United States. Considering only the percentage of these two banks' global assets located in the United States, based on asset allocation, they could be considered American banks. Such large exposures outside of Europe could result in decisions to reduce lending in Europe should they experience significant losses abroad. An interesting side note is that none of the banks listed are Japanese. As a result of the Japanese banking problems, they have significantly reduced their U.S. holdings (Peek and Rosengren 1998, 2000).

Table 3: Major European banks in U.S. 2001

Banking Organization	Country	Global Assets (\$ billion)	*U.S. Assets (\$ billion)	U.S. Assets as % of Global Assets
UBS AG	Switzerland	748	483	65
Deutsche Bank	Germany	817	422	52
Credit Suisse Group	Switzerland	610	261	43
ABN AMRO	Netherlands	531	228	43
Royal Bank of Scotland Group plc	United Kingdom	536	131	24
BNP Paribas	France	735	120	16
HSBC Holdings PLC	United Kingdom	1,012	110	11

\* Includes branches, agencies, subsidiary banks, Edge Corp, nonbank subsidiaries, and Section 20 subsidiaries. Source: Regulatory reports, bank annual reports.

<sup>5</sup> Edge corporations provide international banking services but cannot accept deposits from U.S. residents or businesses unless they are related to foreign trade.

The Japanese experience in the United States illustrates another potential risk to European banks. Japanese banks, faced with binding capital/asset ratios, had to shrink their assets to improve their capital ratios, and chose to reduce their lending abroad while continuing to lend domestically.<sup>6</sup> While some of this may have been the choice of bank management, supervisory policies also encouraged banks to focus on lending domestically.<sup>7</sup>

How would large European banks and their supervisors react to financial losses sufficient to make their capital ratios binding? While much of the focus of European discussion has been on bank failure, the significant shrinkage of bank assets in particular countries is unlikely to be viewed favorably by the host country. This problem may be compounded by Eastern Europe becoming more integrated with Europe, as some Eastern European countries have significant foreign bank penetration (Haas and van Lelyveld, 2002). In addition, supervisory pressure could possibly encourage shrinkage in host countries to prevent credit crunch concerns in the home country. This problem indicates that Europeans need to consider the reaction of troubled as well as failed banks, and what the appropriate supervisory response should be in these instances.

Potentially compounding this problem is that risk sensitive capital allocation, either the result of Basle or just bank risk management practices, will raise the probability of default and loss given default for regions that have experienced an adverse shock. This loss experience will increase the cost of capital to that region as long as the adverse shock is retained in the historical data for calculating capital. Thus future lending may be affected because a higher cost of capital may be assessed for geographic regions experiencing a significant adverse shock. This problem will be compounded by a choice of subsidiary structure, since the only data to calculate probabilities of default and loss given default will be in the geographic region in which the bank subsidiary operates. To the extent that the bank utilizes a branch structure, the historical data may be pooled to include additional geographic regions, thus reducing the overall impact of higher capital on the most affected region.

## Policy

The concerns raised by home/host country shocks raises a variety of policy issues. First, should deposit insurance be administered at the country level? As banks expand in Europe, the difficulty in administering separate insurance funds, and the potential for political fighting surrounding who should pay for a bank failure, may make the resolution process slow and costly. Some of these fiscal complications could be avoided if there was one insurer and if the fund was actuarially determined.

Second, should bank holding companies be considered a source of strength for all bank subsidiaries? In the United States, bank supervisors have recourse against the holding company should a bank subsidiary fail. Requiring a source of strength at the holding company level would prevent some of the perverse home/host country issues.

Third, should Europe consider a more unified early intervention program for problem banks? Problem banks usually are forced to shrink dramatically. Given the importance of banks to the financial infrastructure of a country, attention should be given to handling troubled banks that span several European countries.

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<sup>6</sup> Shocks can also be transmitted from home to host countries. Peria, Powell, and Hollar (2002) find evidence with Latin American data that banks transmit shocks from home to host countries.

<sup>7</sup> For example, Japanese banks that shed their international operations had to maintain a risk-based capital of 4 percent rather than the 8 percent for internationally active banks.

Fourth, is there sufficient coordination between bank supervisory agencies in Europe? The sharing of confidential supervisory data is not common practice in Europe. This raises the issue of large bank failures for which host country supervisors may be only partially informed. Bank supervisors and banks have no incentive to disclose the full extent of problems to avoid a run that will force a bank closure. Without extensive sharing of information, orderly closing of a bank will be challenging at best.

Finally, is there sufficient sharing of information between bank supervisors and monetary policymakers? Banks provide a critical role in the economy. Forecasts of the economy and estimates of the effectiveness of monetary policy could be influenced by a better understanding of banking conditions.<sup>8</sup> This is likely to be even more important as the revolution in information technology makes it easier to track the condition of firms and industries in a bank portfolio.

### **Conclusion**

Jean Dermine's paper provides a useful overview of trends in banking in Europe. While movements toward a more unified banking market have begun, as he points out, they still have a long way to go. However, as Europe moves to a more unified banking market a number of new risks emerge that reflect changes in the banking market and the industrial organization of banks. These risks could pose much greater problems if some of the home/host country issues are not addressed before a crisis occurs.

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<sup>8</sup> Peek, Rosengren, and Tootell (1999) find significant improvements in macroeconomic forecasts by using confidential supervisory data.

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## General Discussion

The Chairman of the session, **Otmar Issing** (ECB), first invited **Jean Dermine** to answer to the discussants. Dermine started with some general remarks on the main message of his paper. He first insisted on the fact that the complexity involved in closing large institutions that operate under many jurisdictions increases the risk of systematic bail-outs. He recalled that the single banking license was introduced with the goal of simplifying the structure of financial institutions, as international financial groups that operate through branches are primarily subject to supervision from a single jurisdiction. He referred to Rosengren's comment that subsidiary structures in the US were adopted along business lines and not according to geographical considerations and stressed that this was not the case in Europe. In response to Harry Huizinga's comments, he emphasised that on the basis of his interviews with two large European banks, the corporate taxes argument is fundamental in explaining the adoption of subsidiary structures in Europe. He called for further research on two issues already addressed in his paper. First, how can corporate taxes prevent the adoption of branch structures? Second, do subsidiary structures create a lack of risk diversification at the subsidiary level, thereby increasing the risk of financial instability in some countries?

Dermine then responded to Rosengren's observation on cross-state mergers in the US. He found that the absence of cross-regional banking activities in the US retail market for small and medium-sized firms is also a feature of the European banking market (with the exception of Scandinavia). This situation, however, might only be temporary as the desire to capture further efficiency gains could force large domestic groups to expand their activities across borders. **Rosengren** replied that this expansion movement will probably happen, but a high degree of consolidation within a market will also deter some potential entrants from going forward. Therefore, he concluded that while he agrees that enhanced cross-border activity will occur, the speed at which it will progress and its extent across Europe are uncertain.

**Dermine** also mentioned the apparent difference between Rosengren's view and the one expressed in the Brouwer report about the extent to which European regulators exchange information. He recalled that the Brouwer report had concluded that there were no legal impediments to the exchange of information between supervisory authorities and that the current level of co-operation in the mechanisms to deal with a European banking crisis was satisfactory. **Rosengren** did not seem to be convinced that co-operation in this respect was sufficient to deal with a crisis involving a large international bank. He indicated that if information is shared, home supervisors face the risk that it is disclosed by their foreign counterparts. As a result they might find it difficult to share confidential information about a large troubled bank, even in the absence of legal impediments.

Otmar Issing then gave the audience the opportunity to ask questions to Dermine and the discussants and to express its views on the numerous issues raised so far. **Jesper Berg** (ECB) mentioned that capital gains taxation in relation to mergers might explain the preferences for subsidiaries over branches. If activities were kept in subsidiaries individual assets did not have to be re-valued and historic losses could possibly be offset against future income. He suggested that it could be worthwhile exploring this possibility in future research. **Andreas Philippou** (Central Bank of Cyprus) commented that the decision to adopt a subsidiary structure might also have been influenced in some instances by laws related to the transfer of

deposits and assets from the acquired to the acquiring firm. If laws require these operations, they might involve high costs such as obtaining the consent of depositors.

**Karel Lannoo** (Centre for European Policy Studies) observed that, as subsidiaries are separately capitalised and supervised entities, a single supervisory agency at the European level would be inefficient. He also commented that, contrary to what most of the speakers seemed to argue, he observed a call for re-regulation rather than de-regulation and a push toward the maximum level of harmonisation in European directives.

**Philipp Hartmann** (ECB) asked Rosengren about the relative balance between competition and stability considerations in the review of bank mergers by the Fed. As the “relevant markets” for retail deposits and small and medium size loans tend to be rather local, he wondered whether the importance of the SME sector for growth underlined by Dermine would not justify a preference for cross-state or even international mergers over in-market mergers of the type that led e.g. to Fleet Boston Financial Corporation in the New England area. **Rosengren** answered that the effects of a bank merger on competition are always considered. This is done on the basis of surveys about where retail depositors live and work, in order to capture the local nature of this market, and not on the basis of state or regional borders. When Fleet Financial Corporation bought Bank of Boston, a significant proportion of assets and deposits had to be sold off to alleviate competitive concerns. While the Fed considers both loans and deposits in their analysis of markets, the Fed’s surveys concentrated more on deposits than on loans. However, Rosengren reassured the audience that the Fed’s merger analyses generally consider the competition side.

**Rafael Repullo** (CEMFI) addressed Dermine’s observation that there were relatively few cross-border mergers despite the efforts to create a single banking market. This, however, did not mean that the single market had not been successful, because the effects of potential competition from foreign banks (as opposed to actual competition via branches or subsidiaries) could be very significant. **Dermine** responded that the importance of the single market is incontestable. However he emphasised once more that the single bankruptcy procedures, while simplifying the process of winding up distressed financial institutions, is not yet adequate to deal with subsidiary structures.

### 3

## Relationship Lending in the Euro Area

Otmar Issing

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The conference is on “The transformation of the European financial system”. This topic raises a wide range of fascinating issues.

The, first, and most immediate question is: have we chosen the right title for the conference? To what extent can we already speak of a *single* European financial system? To what extent are we still dealing with European financial systems, in the plural? I shall leave the answer to this question for the conference – and, most appropriately, for the future – to decide.

A second question could be: why should a central bank organise a conference on banking and financial issues? Here the answer is obvious. Central banks and the financial system are inextricably linked. Central banks rely on the financial system for the transmission of monetary policy. The financial system relies on the central bank as the ultimate source of liquidity, the monopoly supplier of central bank money to the economy and as the institution responsible for maintaining price stability and thus supplying a stable unit of account for all economic and financial transactions. A stable currency and a sound financial system are the foundation of a strong economy. And I believe that a stability-oriented monetary policy is a central bank’s best contribution to a sound financial system, which, in turn, facilitates the conduct of monetary policy.

A further perennial theme running through the conference is the long-standing debate on the relative merits and drawbacks of bank versus market financing of economic activity. This – finally – brings me closer to the subject of tonight’s speech. Here, again, I have no answer to offer, except to say that I trust in the forces of competition, evolution and adaptation in the economy. What matters in the end is that the financial system is robust, resilient and flexible in the face of shocks and new developments. In this context I would not rule out that a financial system based on two pillars of bank *and* market finance may well stand the test of time. While – as you may suspect – I personally have perhaps a natural inclination to associate *two pillars* with robustness, again, I would leave it to you (at the conference) and the course of history to come up with a verdict.

In any event, the papers presented today and tomorrow bring further evidence that the relative importance of banks and markets is a widely used summary indicator of the evolution of financial systems.

The changing nature of banking relationships in European finance today is the issue on which I would like to share a few thoughts with you this evening.

Banks deserve special attention as they are, in continental Europe, the main suppliers of credit and financial services to individuals and firms. My argument will develop around two simple questions:

- How important is relationship lending in the euro area?
- Given the current trends in bank structure and competition, is relationship lending on a declining trend, and if so, what could be the consequences?

## 1. Relationship Lending in Europe

By relationship lending, I mean that banks and their customers build up agreements on terms of credit, implying for instance secured access to credit lines at pre-set prices. The bank acquires expertise about the credit-worthiness of its customer by keeping close contact with the management of the firm. For instance, the bankers who sit on the board of many European firms can gain insider information on these firms. The implication of this close link may be that the bank provides the firm with easier access to liquidity.

Relationship lending is particularly widespread in the euro area, in particular regarding small and medium enterprises (SME). Given that SME account for about 60% of private sector employment in the euro area, it is immediately apparent that a reduction in the availability of relationship lending could have an effect on the euro area's economy and on the working of monetary policy. This is particularly relevant to determine the importance of the often mentioned "credit channel of monetary policy".

At the micro-economic level, relationship lending implies that the bank insulates its customers from liquidity or interest rate shocks. In case of a drop to its cash flow e.g., a firm can draw on a credit line that has been previously negotiated. Likewise, bank lending rates will not necessarily be adjusted in line with market interest rates. While firms that have access to these risk-sharing schemes can be expected to pay some form of an insurance premium to the bank, their decisions on investment, employment and production should be less sensitive to financial shocks.

Hence, at the macro-economic level, the more widespread relationship lending is, the smoother the business cycle should be. This may contribute to explain why business cycle fluctuations have traditionally been larger in the US and the UK, where relationship lending is limited, than in continental Europe, where relationship lending is thought to be prevalent. It may also imply that the role of banks in the transmission of monetary policy differs in continental Europe and in the US or the UK. In continental Europe, banks would insulate the firms from the effects of changes in the market interest rates to a larger extent than US or UK banks would, because of the larger proportion of loans granted through relationship lending.

But, as I will argue, current trends in bank structure and competition seem to be putting pressure on banks to limit the scale of their relationship lending activities.

## **2. What Then are the Main Characteristics and Trends of the European Banking Sector?**

Let me briefly touch upon some aspects that have been addressed in the papers by Dermine and by Rajan and Zingales. These papers stress that competition, both among banks and from other financial intermediaries, has led to the consolidation of the European banking sector and to a diversification of the financial services proposed by banks.

First, there has been significant consolidation of the banking sector, including a sharp fall in the number of banks. Overall, the number of banks in the euro area decreased by about a third in the last fifteen years.

Second, financing through issuance of market instruments, which has historically played a minor role for euro area corporations, has become more important since the start of Stage Three of Economic and Monetary Union. Due to the monetary union, large issuers can more easily go abroad if their domestic financial markets are not sufficiently developed. And European Banks have been confronted with competition from non-European investment banks in the issuance-underwriting business.

Third, traditional deposit-taking activities have been challenged by the emergence of assets management companies and mutual and pension funds. These bank competitors have boomed in the last decades, accentuating the competitive pressure on the traditional banking business.

Fourth, retail lending, and especially lending to SMEs, remained untouched from the competition of either other financial intermediaries or foreign banks. However, given the over-capacity of most domestic banking sectors of euro area, retail lending is likely to undergo intensified competition among domestic banks.

Like any business that is confronted with new competitors, banks reassess their activities. For instance, we observe in most countries that banks have been able to generate income by entering into the business of their competitors. Banks actually have offered mutual funds and other portfolio management services to the customer network acquired via their traditional deposit taking and lending activities. Now, many economists have asked whether relationship lending can remain profitable in a more competitive environment.

### **3. Increased Competition in Banking Seems to be Reducing the Availability of Relationship Lending in the Euro Area**

Before further describing the effects of increased competition on the availability of relationship lending, let me stress that the phenomena we are talking about are not directly observable, and it is hard to evaluate the availability of relationship lending with certainty.

On the one hand, increased competition may deter banks from costly acquisition of information on borrowers if they fear that the latter can more easily switch to other banks in good times. On the other hand, the competition from non-banks in so many of banks' activities may push more banks towards relationship lending with SME, a segment on which they can not be challenged by non-banks.

Recent evidence seems to suggest that the availability of relationship lending is decreasing. We observe for instance that in Belgium and Germany, the growth rate of real loans to the private sector is lower than output growth, which is quite different from what was observed in previous episodes of economic slowdown. This decline coincides with large commercial banks reducing the scale of their retail banking because competition from local savings banks has intensified.

There is also evidence that the banks which have been involved in mergers tend to limit the scale of their lending relationship activities.

Finally, some observers expect that the introduction of the Basel II accord would increase the capital charges on loans supplied to Small and Medium Enterprises. This new regulation is likely to make the price of credit to Small and Medium Enterprises more responsive to market interest rates.

This would directly affect the role of banks in the monetary policy transmission; as the recent research in the Eurosystem has shown this role depends on the particular environment in which European banks have operated up to the recent past. For instance, many of the small banks operating in the euro area benefit from a state guarantee or are supplied with liquidity by larger banks with which they have long-term ties.

In conclusion, recent trends in the European financial markets seem to have put pressure on banks, leading some of them to reduce the scale of their relationship lending activities. If it continues, the recent reduction in the availability of relationship lending in Europe could affect the euro area business cycle and the transmission of monetary policy as the liquidity insurance provided by banks to SME decreases.

All in all, increased competition will trigger substantial changes and cause difficulties. But in the end after a period of transition the financial industry of the euro area will have gained competitiveness and strengthened robustness.

Such developments are clearly of primary importance for central bankers and this is precisely why this conference is so useful.

## 4

### **Banks and Markets: The Changing Character of European Finance**

Raghuram G. Rajan and Luigi Zingales\*

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## Introduction

In the last two decades Europe has experienced a dramatic expansion of financial markets, especially of arm's length financial markets. But what are the underlying causes of these changes? Are these causes likely to subside in the next few years? Most importantly, will additional movements in this direction be beneficial to the economies of all the E.U. countries? These are the issues we address in this paper.

We start with a theoretical analysis of the costs and benefits of two polar forms of financing: relationship-based, more prevalent in Europe at the beginning of the decade, and arm's-length, more prevalent in the United States, but increasingly more widespread in Europe during the last decade. Not surprisingly, the analysis suggests that both systems have their costs and benefits. Relationship-based systems perform better when markets and firms are smaller, when legal protection is weaker, when there is little transparency, and when innovation is mostly incremental, rather than revolutionary. By contrast, arm's-length financing delivers superior results when markets and firms are bigger, when firms are more formally organized, when there is better legal enforcement and transparency, and when innovation tends to be more revolutionary. A relationship-based system can provide better forms of insurance, but it does that at the cost of reducing access to financing and curtailing future opportunities. It also relies heavily on implicit or explicit government guarantees. Finally, a relationship-based system facilitates Government intervention, making it both less costly and less transparent. Which system is preferable, though, depends crucially on the environment.

During the last decade, two forces have supported the expansion of arm's length financing in Europe: the process of integration, both monetary integration at the European level and financial integration at the worldwide level, and the revolutionary nature of innovation. Financial systems do not, however, emerge simply as a result of their superiority in a particular environment. The power of vested interest distorts the process of evolution.

To better understand where the European financial systems are coming from and where they are going, we undertake a historical analysis of European financial development using the lens of political economy. The comparison with the United States is particularly illuminating. Before World War I, European financial systems were more developed than the United States' (Rajan and Zingales, 2003a). It is only in the 1920s and even more so after the Depression that the U.S. financial system took off (in relative terms) and assumed the form it has today. The cause of this different evolution has to be found in the different initial conditions of the two systems, which affected their responses to the Great Depression.

On the eve of World War I the United States had a much fragmented banking system. As Roe (1994) argues, this fragmentation has historically been the result of a populist fear of large financial institutions. In part, this fear was motivated by political rivalry between states and the fear that, if unchecked, New York would control the rest of the country through its strong banks. But this was not the only reason. In Illinois, Chicago banks were prevented from opening branches in the Southern part of the state, to force the reinvestment of farmers' savings in the local market. In Europe the situation was quite different. Before World War I, large national banks were much more central in the allocation of finance.

The concentration of the banking system affected the response to the Great Depression. In Europe the dominance of a few large banks facilitated the formation of a political coalition between more interventionist governments and the banking system. As a result, not only was the legal infrastructure needed to support arm's length markets not fully fleshed out (if not actively suppressed), but also the regulatory framework tilted towards large banks. A similar process occurred in Japan. Thus, neither the European bank-centered system nor the

American market-based one is the natural outcome of market forces. They are both the result of political choices.

In Europe, the nexus between interventionist governments and bank-based systems continued well after World War II, facilitated in large measure by the Bretton Woods System. Because it tolerated restrictions on free capital movements, the Bretton Woods System created ample scope for national monetary policies. This independence allowed national governments to interfere and collude with the banking system, generally preventing the development of arm's-length markets. As we describe in Rajan and Zingales (2003 b), the collapse of the Bretton Woods System and the progressive integration of national financial markets, weakened the political opposition to financial markets, leading to their expansion throughout the world, but especially in Europe.

This analysis suggests an alternative reason why the process of monetary and financial integration favored the development of arm's-length markets. Integration opened up domestic intermediaries to foreign competition, which, being foreign, could not be easily controlled through the political process. Thus, external competition limited the ability of incumbents to hamper the development of arm's-length markets. Now that the goal to remove internal barriers is by and large accomplished, however, and that the political objective is to build a common European policy, the effect can be the opposite. The more political powers are transferred to a central authority, the more this central authority can exploit its monopoly power to interfere with market development. Thus, the pro-market bias that has characterized the European Union policy up to now (with notable exception such as agricultural policy), runs the risk of being reversed in the future.

Even if the trend towards markets were to continue, however, its effect would not be all necessarily positive. Arm's length markets need a sound legal, regulatory, and monitoring infrastructure to work properly. The degree to which this infrastructure is in place differs greatly within Europe, with Southern Europe lagging much behind. At the same time, the ability of a country's economy to take advantage of arm's length markets also depends upon its industrial structure. Large, formally organized companies have the necessary scale to generate the information needed by the system at a low cost and to take full advantage of the economies of scale present in arm's length markets. Small businesses are likely to be relatively worse off as a result of this movement toward markets, the more so, the more inadequate the local infrastructure is. Since firms tend to be smaller in Southern Europe, this part of the Union might suffer, with neither the benefits of the market nor the certainties of the uncompetitive relationship system, unless it undertakes serious structural reforms.

The rest of the paper is organized as follows. In section 1 we review the changes that have taken place in European financial markets in the last 20 years. In section 2, we describe a theoretical framework to analyze the trade off between relationship-based financing and arm's length financing. In section 3 and 4, we discuss the political conditions for the development of finance, especially for the development of arm's length finance. In section 5, we apply this framework to interpret the recent history of European financial markets and draw inferences about its future. Conclusions follow.

## **1. The Financial Revolution in Europe**

As we have discussed elsewhere (Rajan and Zingales 2001a, Rajan and Zingales 2003b), the last twenty years have witnessed dramatic development of financial markets in the United States and throughout the world. Here we want to discuss specifically the changes that occurred in Europe. It is useful, however, to begin with a quick overview of the state of affairs in Europe circa 1980.

### 1.1 European Financial Systems circa 1980

By the early 1980s, Continental Europe was still largely a relationship-based system while the United States and the United Kingdom had become market based financial systems. Crudely put, in the former countries, capital essentially circulated within a set of related firms and institutions, while in the latter countries firms often had to raise money from, and return money to, arm's length parties (see Hellwig (2000) for an excellent description): Hence the terms "relationship" finance and "arm's length" finance. Other terms have been used to describe these different systems: Rhenish Capitalism versus Anglo-American Capitalism or Bank based systems versus Market based systems. To get a sense of the differences, let's compare some rough indicators of financial development between Continental Europe and arm's length financial systems, such as the United States and the United Kingdom.

In Table 1, we report these figures for 1980. Not surprisingly, bank deposits were more important in Continental Europe than in the Anglo-American economies. What is remarkable is the difference. Bank deposits relative to GDP were 60 percent larger in Continental Europe

Table 1: Different indicators of financial development in 1980

Bank loan to the private sector is the ratio of claims on private sector of deposit money banks (line 22d International Financial Statistics) and GDP. Deposits to GDP is the ratio of commercial and savings bank deposits (lines 24 and 25 of International Financial Statistics) and GDP. Stock market Cap to GDP is the aggregate market value of equity of domestic companies divided by GDP. Number of companies to population is the ratio of number of domestic companies whose equity is publicly traded in a domestic stock exchange and the country's population in millions. Equity issues to GFCF is the ratio of funds raised through public equity offerings (both initial public offerings and seasoned equity issues) by domestic companies to gross fixed capital formation.

Country	Bank Loan to Private Sector	Deposits	Stock Market Cap.	Equity issues	N. of companies
Austria	0.742	0.682	0.030	0.000	8.740
Belgium	0.272	0.299	0.090	0.030	22.850
Denmark	0.244	0.276	0.090	0.010	42.540
Finland	0.462	0.391	NA	0.012	NA
France	0.731	0.679	0.090	0.060	13.990
Germany	0.864	0.564	0.090	0.010	7.460
Greece	0.520	0.507	0.085	NA	NA
Ireland	0.315	0.577	NA	NA	NA
Italy	0.555	0.676	0.070	0.040	2.360
Luxembourg	1.210	1.626	0.001	0.016	205.556
Netherlands	0.632	0.602	0.190	0.010	15.120
Portugal	0.855	0.946	0.006	NA	NA
Spain	NA	0.723	0.087	0.028	13.213
Sweden	0.415	0.510	0.110	0.000	12.390
Average Cont. Europe	0.601	0.647	0.078	0.020	34.422
United Kingdom	0.276	0.280	0.380	0.040	47.220
United States	0.354	0.540	0.460	0.040	23.110
Average Anglo-American	0.315	0.410	0.420	0.040	35.165

Source: IMF and Rajan and Zingales (2003a). NA = not available.

than in the United States and the United Kingdom. Bank credit to GDP was nearly twice the level in Continental Europe as a proportion of GDP as that in the United States and United Kingdom. The reverse was true for the importance of the stock market. In Continental Europe its weight (relative to GDP) was one fifth of that of the United States and the United Kingdom. In these two countries the amount of equity issued (normalized by Gross Fixed Capital) was twice as large as the amount raised in Continental Europe. While the number of publicly traded companies per million of population was similar, once we remove the unrepresentative outlier of Luxembourg, Continental Europe again has few listed firms.

Since these indicators are very rough, they tend to underestimate the true differences in the development of arm's length markets between the two groups of countries. For example, while in 1980 the United States had several active derivatives exchanges, in Europe only London had an active exchange while Amsterdam had just opened one.

These macro differences also translated into micro differences in the way firms financed themselves. While large publicly traded companies did not differ much in the capital structure (Rajan and Zingales, 1995), small firms did. Consider, for example, the prototypes of the two systems: Germany and the United States. In 1994, only 16 percent of borrowing by firms in the United States was from banks, while 49 percent was through the issue of securities (like bonds and commercial paper).<sup>1</sup> Unlike bank loans, securities are easily traded, and are held by investors who typically do not want to have more than an arm's length relationship with the issuing firm. By contrast, 80 percent of corporate borrowing in Germany was from banks and only 10 percent from securities markets. Banks, by the nature of their large illiquid holdings, tend to have much closer, and longer term ties with firms.

There were substantial differences on the equity side too. Between 1991 and 1995, U.S. corporations annually issued equity amounting to 1.2 percent of GDP. By contrast, German corporations issued equity amounting only to 0.04 percent of GDP. Most telling, there were 3.11 initial public offerings per million U.S. citizens in 1995. The comparable number per million German citizens was only 0.08 (La Porta et al., 1997).

Even the outstanding equity was held very differently. In 1994, individuals held about half the outstanding shares of U.S. corporations. Other non-financial corporations held only 14 percent of each other's shares and banks held virtually zero. In Germany, individuals held only 17 percent, while banks held 10 percent (and also cast the vote for a substantial fraction of the shares held by individuals). Other non-financial corporations held an astounding 42 percent of the shares. Thus other firms and banks owned (and still do) a majority stake in large German firms. Because large institutions rather than individuals own shares in Germany, ownership is much more concentrated. The top 5 shareholders in Germany own approximately 42 percent of shares in the average large corporation, while the number in the United States was only 25 percent.

The large shareholders in Germany tend to be much more protective of the management along some dimensions. Depending on how one counts, there were only 4 hostile takeovers (where the firm taking over does so without the support of the target firm's management) of German firms in the second half of the twentieth century (Franks and Mayer, 1998). The reaction to German steel company, Krupp's, proposed hostile takeover bid for Thyssen (also German, also in steel) in March 1997 perhaps explains why. Thyssen immediately lashed out at Krupp's "Wild West" tactics (in other words, American-style arm's length capitalism rather than the more traditional way of backroom consensus). Krupp's Chairman came under vociferous attack, and had to defend himself, among other things, from a volley of rotten eggs

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<sup>1</sup> These figures and the ones that follow (unless otherwise stated) are from Stephen Prowse (1996).

thrown by irate Thyssen workers. Politicians right up to Chancellor Kohl became involved, and pressure was put on Krupp's bankers (who also had seats on Thyssen's board) to persuade Krupp to be more conciliatory. While a consensus was eventually reached, and the two firms merged with both managements sharing power, the process was much more highly politically charged and protective of the status quo than would have been the case in the United States.

In sum, in every respect Continental Europe had a financial system more based on banks and institutional relationships than the United States and the United Kingdom.

### *1.2 Evolution in the Last Two Decades*

As we report in Table 2, the last two decades have witnessed an expansion of markets everywhere. This is not simply due to an explosion in valuations associated to what is now currently called the "internet bubble". Even in the already market-oriented United States the ratio of stock market capitalization to GDP has increased more than three times as has the

Table 2: Different indicators of financial development in 2000

Bank loan to the private sector is the ratio of claims on private sector of deposit money banks (line 22d International Financial Statistics) and GDP. Deposits to GDP is the ratio of commercial and savings bank deposits (lines 24 and 25 of International Financial Statistics) and GDP. Stock market Cap to GDP is the aggregate market value of equity of domestic companies divided by GDP. Number of companies to population is the ratio of number of domestic companies whose equity is publicly traded in a domestic stock exchange and the country's population in millions. Equity issues to gross fixed capital formation (GFCF) is the ratio of a three year average (1999-2001) of funds raised through public equity offerings (both initial public offerings and seasoned equity issues) and domestic companies to GFCF.

Country	Bank Loan to Private Sector	Deposits	Stock Market Cap.	Equity issues	N. of companies
Austria	1.040	0.819	0.156	0.051	11.975
Belgium	0.792	0.837	0.783	0.138	15.707
Denmark	NA	NA	0.686	0.192	42.135
Finland	0.534	0.464	2.383	0.497	29.730
France	0.864	0.636	1.087	0.145	13.720
Germany	1.207	0.925	0.668	0.065	9.071
Greece	0.526	0.566	0.942	0.430	30.869
Ireland	1.069	0.793	0.843	0.172	20.053
Italy	0.770	0.514	0.703	0.041	5.058
Luxembourg	1.099	3.367	1.771	0.494	122.727
Netherlands	1.398	0.963	1.701	0.629	14.754
Portugal	1.408	0.997	0.567	0.502	10.889
Spain	1.012	0.816	0.882	0.866	25.817
Sweden	0.457	0.391	1.476	0.289	32.920
Average Cont. Europe	0.937	0.930	1.046	0.322	27.530
United Kingdom	1.320	1.069	1.840	0.149	32.370
United States	0.493	0.379	1.549	0.207	25.847
Average Anglo-American	0.907	0.724	1.694	0.178	29.109

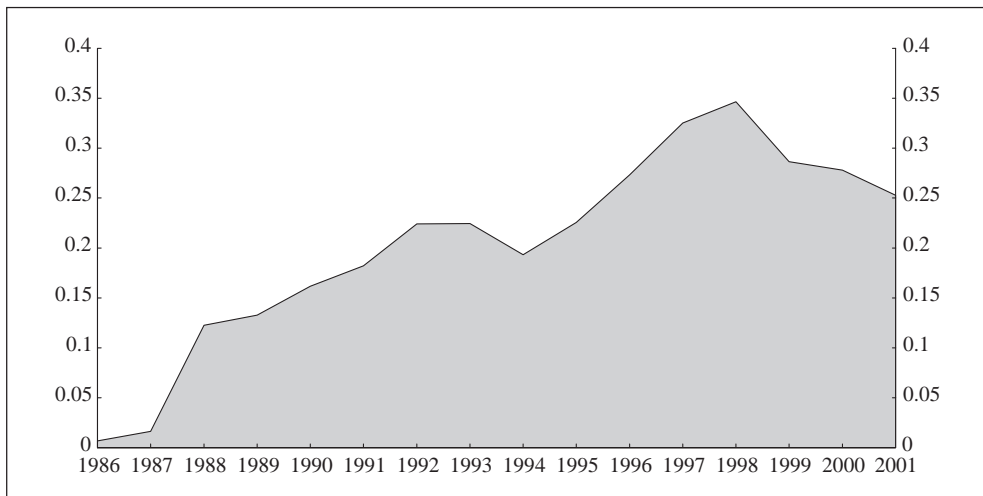
Source: FIBV, IMF, and Rajan and Zingales (2003a). NA = not available.

amount of investment financed with equity issues. The growth in markets has been even more pronounced in Continental Europe. In the two decades since 1980, the stock market capitalization to GDP ratio went up more than thirteen times while the proportion of investments financed through equity issues went up sixteen times. Though this did not completely eliminate the gap with the Anglo-American economies, it clearly reduced it. In 1980 the stock market capitalization of Anglo-American economies was five times as large as that of Continental European countries, in 2000 it was only sixty percent higher. Many countries in Continental Europe now have a large number of listed firms. Interestingly, while the proportion of bank credit in the United Kingdom has grown substantially and resembles that in Continental Europe, the United States still has relatively small amounts of commercial bank intermediation.

Many Continental European countries have introduced new equity markets – such as the Neuer Markt in Germany – where disclosure requirements are substantially higher than what has been followed in the past in those countries. The advent of these new markets affected the volume of venture capital financing, which went up substantially (Kukies, 2001), Bottazzi and Da Rin (2002). This is not just the effect of the creation of a new market, since countries that introduced new markets with equal or lower disclosure than the established exchange did not experience such an increase (Kukies, 2001). Unfortunately, many of these markets turned out to be short-lived. Following the internet crash and several scandals, for example, the Deutsche Bourse has recently announce it will close the Neuer Markt.<sup>2</sup> Nevertheless, their creation signified a remarkable change in the European equity culture. Whether this change will survive the stock market downturn, it remains to be seen.

Figure 1: European share in the total derivative market

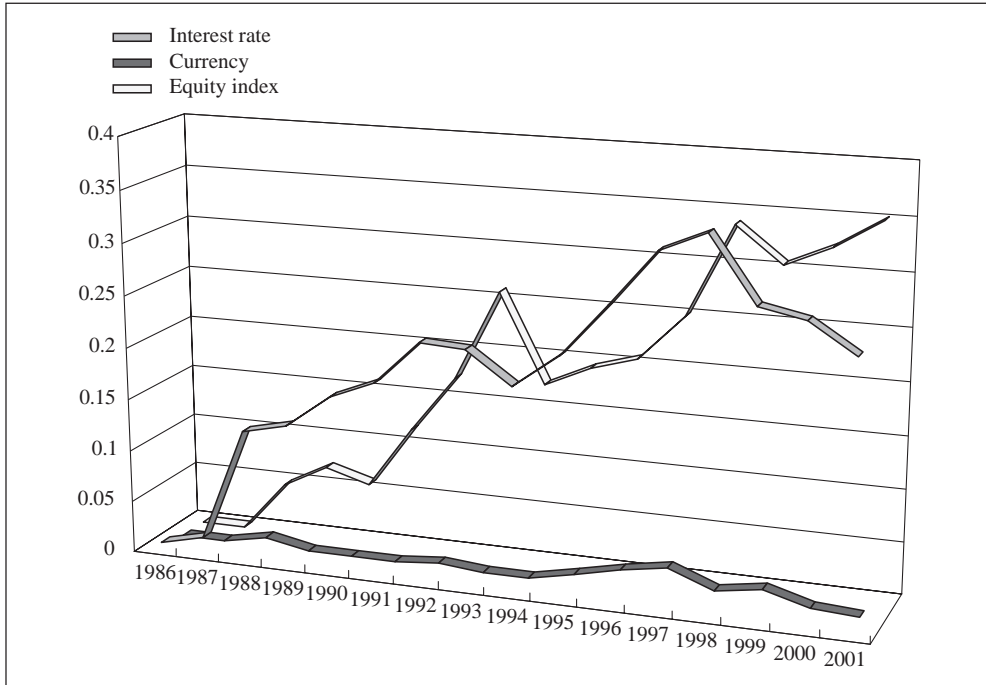
*(Percentage of the open interest contracts (sum of interest rate, currency, and equity indexes) that are traded on European exchanges)*



Source: BIS.

<sup>2</sup> The Neuer Markt will be substituted by a “premium segment”, which has not the same characteristics of the Neuer Markt.

Figure 2: European share in the different derivative markets  
*(Percentage of the open interest contracts that are traded on European exchanges)*



Source: BIS

The 1990s have also witnessed the explosions of financial derivatives in Europe. At the end of the 1980s and beginning of the 1990s all the European countries introduced a derivatives exchange and the amount of derivatives outstanding went from \$2.7 billion in 1986 to \$2.4 trillion in 2001. More noticeably, the share of trading of derivatives on European exchanges increased remarkably. As Figure 1 shows, the fraction of worldwide open interest contracts traded on European derivatives exchanges went from less than 1% to more than 25% in 15 years. Interestingly, European markets have a smaller and decreasing share in currency derivatives (probably as a result of the euro), but a larger and increasing share in equity index derivatives (Figure 2).

The increased role of markets can also be appreciated by looking at growing importance of corporate debt issues. Domestic corporate debt grew from 13% of GDP to 17% of GDP (Table 3 and 4), and international corporate debt grew from 2.4% of GDP to 6% of GDP. (Table 5).

Most interestingly, markets are slowly replacing banks in many of the traditional roles performed by the latter. The best example is securitization, where traditional loans and mortgages are packaged together and sold as securities. As Figure 3 shows, in the last four years alone, the volume of asset and mortgage backed securities having underlying collateral from Europe placed in the Euromarket, or in European domestic markets, increased four times.

Table 3: Evolution of bank debt

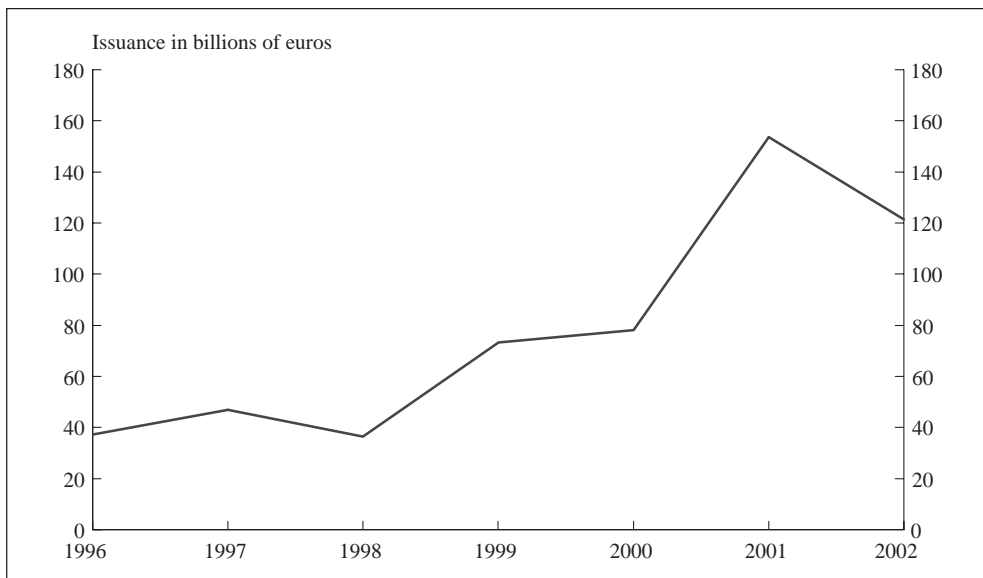
Bank loan to the private sector is the ratio of claims on private sector of deposit money banks (line 22d International Financial Statistics) and GDP.

	1980	1985	1990	1995	1998	1999	2000	2001
Austria	0.742	0.841	0.928	0.940	NA	1.002	1.040	1.062
Belgium	0.272	0.248	0.353	0.747	NA	0.817	0.792	0.771
Denmark	0.244	0.300	0.520	0.310	0.351	0.347	NA	NA
Finland	0.462	0.601	0.860	0.620	0.520	0.539	0.534	0.576
France	0.731	0.764	0.960	0.869	NA	0.821	0.864	0.898
Germany	0.864	0.953	1.006	1.031	1.186	1.178	1.207	1.210
Greece	0.520	0.517	0.367	0.336	0.381	0.461	0.526	0.633
Ireland	0.315	0.456	0.476	0.703	0.892	1.031	1.069	1.118
Italy	0.555	0.506	0.565	0.575	0.589	0.711	0.770	0.795
Luxembourg	1.210	0.978	1.243	0.976	NA	1.075	1.099	1.373
Netherlands	0.632	0.611	0.794	0.941	NA	1.296	1.398	1.426
Portugal	0.855	0.815	0.506	0.705	1.024	1.209	1.408	1.460
Spain	NA	NA	0.831	0.770	0.925	0.923	1.012	1.059
Sweden	0.415	0.393	0.582	0.348	0.405	0.423	0.457	NA
United Kingdom	0.276	0.472	1.158	1.153	1.183	1.212	1.320	1.385
Euro area average	0.651	0.663	0.741	0.768	0.788	0.922	0.977	1.032
EU average	0.578	0.604	0.743	0.735	0.746	0.870	0.964	1.059
United States	0.354	0.371	0.430	0.436	0.470	0.474	0.493	0.503

Source: IMF Financial Statistics. NA = not available.

Figure 3: The increase in securitization

New issues of asset backed securities and mortgage backed securities placed in the Euromarket or in European domestic markets having underlying collateral from Europe.



Source: ESF Securitisation Data Report.

Table 4: Increased importance of corporate debt

Domestic corporate debt outstanding divided by GDP.

	1989	1990	1991	1992	1993	1994	1995
Austria	0.018	0.017	0.016	0.014	0.017	0.019	0.021
Belgium	0.078	0.073	0.070	0.067	0.065	0.065	0.065
Denmark	0.925	0.910	0.905	0.876	1.062	0.912	0.896
Finland	0.099	0.103	0.103	0.092	0.094	0.074	0.057
France	0.038	0.043	0.044	0.044	0.042	0.042	0.039
Germany	0.001	0.001	0.004	0.006	0.005	0.003	0.002
Greece	0.052	0.054	0.043	0.048	0.042	0.042	0.025
Ireland	0.020	0.026	0.033	0.047	0.058	0.041	0.033
Italy	0.005	0.004	0.003	0.002	0.002	0.004	0.004
Luxembourg							
Netherlands	0.031	0.033	0.031	0.031	0.031	0.033	0.033
Portugal	0.038	0.047	0.045	0.044	0.046	0.057	0.074
Spain	0.081	0.105	0.090	0.092	0.093	0.077	0.063
Sweden	0.450	0.483	0.504	0.558	0.592	0.524	0.493
United Kingdom	0.035	0.032	0.030	0.032	0.039	0.041	0.044
Euro area average	0.042	0.046	0.044	0.044	0.045	0.041	0.038
EU average	0.134	0.138	0.137	0.139	0.156	0.138	0.132
United States	0.222	0.222	0.229	0.233	0.236	0.227	0.229

	1996	1997	1998	1999	2000	2001
Austria	0.017	0.019	0.020	0.019	0.017	0.016
Belgium	0.066	0.065	0.064	0.075	0.072	0.080
Denmark	0.893	0.912	0.951	0.940	0.957	1.007
Finland	0.056	0.047	0.048	0.061	0.060	0.056
France	0.053	0.051	0.055	0.075	0.093	0.088
Germany	0.003	0.004	0.004	0.007	0.013	0.020
Greece	0.008	0.008	0.008	0.003	0.002	NA
Ireland	0.021	0.050	0.060	0.074	0.097	0.105
Italy	0.004	0.005	0.005	0.010	0.024	0.061
Luxembourg						
Netherlands	0.036	0.038	0.043	0.067	0.125	0.136
Portugal	0.090	0.089	0.099	0.099	0.096	0.090
Spain	0.057	0.052	0.056	0.067	0.058	0.072
Sweden	0.511	0.458	0.437	0.407	0.333	0.283
United Kingdom	0.046	0.057	0.081	0.102	0.130	0.154
Euro area average	0.037	0.039	0.042	0.051	0.060	0.073
EU average	0.133	0.132	0.138	0.143	0.148	0.167
United States	0.229	0.226	0.236	0.241	0.240	0.241

Source: BIS for the debt and IMF Financial Statistics for the GDP. NA = not available.

Table 5: Increased importance of international corporate debt

International corporate debt outstanding by country of issuer divided by GDP.

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Austria	0.033	0.034	0.033	0.028	0.027	0.026	0.024	0.022	0.021
Belgium	0.005	0.004	0.008	0.008	0.008	0.009	0.010	0.008	0.023
Denmark	0.025	0.026	0.024	0.026	0.021	0.022	0.025	0.028	0.038
Finland	0.038	0.025	0.021	0.017	0.030	0.025	0.033	0.049	0.066
France	0.039	0.041	0.039	0.041	0.042	0.048	0.069	0.091	0.128
Germany	0.003	0.004	0.004	0.004	0.006	0.006	0.010	0.021	0.023
Greece	0.026	0.025	0.023	0.020	0.017	0.018	0.024	0.032	NA
Ireland	0.012	0.011	0.007	0.007	0.016	0.007	0.008	0.016	0.043
Italy	0.004	0.005	0.005	0.004	0.003	0.005	0.007	0.009	0.019
Luxembourg	0.055	0.045	0.055	0.114	0.118	0.104	0.098	0.084	0.107
Netherlands	0.034	0.036	0.035	0.041	0.043	0.056	0.069	0.141	0.147
Portugal	0.007	0.005	0.003	0.002	0.002	0.003	0.012	0.011	0.023
Spain	0.006	0.005	0.005	0.005	0.007	0.008	0.017	0.028	0.033
Sweden	0.033	0.024	0.023	0.017	0.019	0.027	0.044	0.053	0.075
United Kingdom	0.044	0.043	0.045	0.045	0.054	0.065	0.083	0.107	0.106
Euro area average	0.022	0.020	0.020	0.024	0.027	0.026	0.032	0.043	0.058
EU average	0.024	0.022	0.022	0.025	0.028	0.028	0.035	0.047	0.061
United States	0.007	0.007	0.007	0.008	0.011	0.013	0.019	0.023	0.031

Source: BIS for the debt and IMF Financial Statistics for the GDP. NA = not available.

There are also many qualitative signs of the changed attitude toward financial markets. Traditionally, the Continental European attitude toward shareholders was epitomized by Carl Furstenberg, a German banker<sup>3</sup>

*“Shareholders are stupid and impertinent – stupid because they give their money to somebody else without any effective control over what this person is doing with it, and impertinent because they ask for a dividend as a reward for their stupidity.”*

This attitude is very much changed. In recent years, German companies have been advertising their adherence to the principle of shareholder value maximization in the financial press.<sup>4</sup> This is not simple cheap talk. Disclosure standards have improved throughout the Continent as have laws to protect minority shareholders. For example, in Table 6, we report the year of introduction of a law to prosecute insider trading and the year this law was applied for the first time. Before 1980 no EU country, except France and Sweden, had an anti-insider trading law. And while in Sweden the law was introduced in 1971 the first insider trading case was not brought until 1990. This latter date is more important than the former, since Bhattacharya and Daouk (2002) show that investors' required rate of return falls not when a law is passed, but when it starts to be enforced. By the end of the century, all EU members had an anti-insider trading law and most of them had also started to enforce it.

In sum, although relationship-based finance still remains pervasive in Europe, the last twenty years have seen a clear expansion of the sphere of arm's length markets. What is less clear, however, is the origin of this trend. Is this simply a reflection of an international

<sup>3</sup> Cited by Martin Hellwig (2000), 109.

<sup>4</sup> See e.g. Veba's advertising in the Wall Street Journal.

Table 6: Introduction and enforcement of the insider trading law

The first column reports the year legislation to curb insider trading was introduced, the second one the year the first case of prosecution took place. „No“ means there has been no case of prosecution.

Country	Year insider trading law introduced	First time it was enforced
Austria	1993	No
Belgium	1990	1994
Denmark	1991	1996
Finland	1989	1993
France	1967	1975
Germany	1994	1995
Greece	1988	1996
Ireland	1990	No
Italy	1991	1996
Luxembourg	1991	No
Netherlands	1989	1994
Portugal	1986	No
Spain	1994	1998
Sweden	1971	1990
United Kingdom	1980	1981
United States	1934	1961

Source: Bhattacharya and Daouk (2002)

movement toward arm's length financing, may be due to the market euphoria of the end of the century? Or is it an effect of the progressive integration of Europe culminating with the introduction of the euro? Is this trend likely to continue in the future? And is it necessarily positive for all the members of the European Union? What can be done to alleviate/ameliorate the effects of this trend? In order to answer all these questions we need to take a step back and review what are the conceptual differences between these two types of financing and what are their pluses and minuses.

## 2. Relationship-based versus Arm's-length Financing

“Relationship-based” and “arm's-length” refer to two polar forms of financing. As Rajan and Zingales (1998a) argue, relationship-based financing ensures a return to the financier by granting her some form of power over the firm being financed. The simplest form of power is when the financier has (implicit or explicit) ownership of the firm. The financier can also serve as the sole or main lender, supplier, or customer. In all of these forms, the financier typically attempts to secure her return on investment by retaining some kind of monopoly over the firm she finances. As with every monopoly, this requires some barriers to entry. These barriers may be due to regulation, or to a lack of transparency – or “opacity” – of the system, which substantially raises the costs of entry to potential competitors. In arm's-length financing, instead, the financier is mainly or solely protected by explicit contracts.

Relationship financing is largely self-governing; parties intent on maintaining their “reputations” honor the spirit of the agreement (often in the absence of any written contract) in order to ensure a steady flow of future business within the same network of firms. By contrast,

the prompt and unbiased enforcement of contracts by courts is a pre-condition for the viability of a market-based system. Moreover, since contracts are typically hard to write with the wealth of detail necessary to fully govern transactions, it is important that the law offer a helping hand.

Let us consider the example of a transaction – the extension of credit – in each of the two systems. These are, no doubt, caricatures, but they will serve the purpose if they highlight the essential forces in each system. In a relationship-based system, a bank will have close ties with a potential borrowing firm, perhaps because of frequent past contacts or because of ownership links. In assessing the borrowing needs of the firm and its ability to pay interest and principal, the bank will consider not only the firm's current debt-servicing capability, but also its long-term ability to repay, and the various non-contractual levers the bank can push to extract repayment. The interest rate charged will be repeatedly negotiated over time, and may not have a direct relationship to the intrinsic risk of the project.

In an arm's-length system, by contrast, the firm will be able to tap a wider circle of potential lenders because there will be more widespread financial information about it. The loan will be contracted for a specific period, and the interest rate will be a competitive one that will compensate the lender for time and the risk of that particular loan.

Limitations on competition in a relationship-based system do not just give the financier power, but also strengthen his incentive to cooperate with the borrower. Studies of Japanese *keiretsus* show that the main banks went out of their way to help financially distressed borrowers. For example, Sumitomo Bank not only effectively guaranteed Mazda's debts when it got into trouble after the first oil shock, but also orchestrated a rescue, in part by exhorting employees within its *keiretsu* to buy Mazda cars (Hoshi, et al., 1990b). Sumitomo's incentive to help would have been considerably weaker if Mazda had had the option of giving the lion's share of its business, once it emerged from distress, to some other bank. The effective limitations on outside competition imposed by the *keiretsu* system enable lenders to "internalize" a greater share of the benefits accruing to the borrowers than is possible in an arm's-length, competitive banking environment.

The absence of competition and disclosure in a relationship-based system imply that there are really no price signals to guide decisions. Unlike an arm's-length system, where a number of competitive lenders can give a borrowing firm independent assessments of the costs of undertaking a project, the cost a borrower faces in the relationship-based system is simply what the relationship lender and the borrower negotiate. Since there can be substantial value created in the relationship, and the negotiation and allocation of this surplus is a function of each party's power, the effective cost of financing can deviate substantially from the true risk-adjusted cost.

### ***2.1 Theoretical Differences Between the Two Types of Systems***

While there is clearly an overlap between our classification and the classification of systems as bank-oriented or market oriented (or more recently, Rhenish Capitalism vs Anglo Saxon Capitalism), the two are not the same. Relationship-based financing is more typical of, but not unique to, banks. Venture capital financing is very much relationship-based, even though it is typically not done by banks, and is found largely in market-based economies. Similarly, multiple banking relationships tend to reduce the power of each individual bank, leading to a system that has many aspects of an arm's length one. As a result, we find it more fruitful to study the welfare consequences of the pure stereotypes and only later analyze how these affect the functioning of real-world financial systems. For an excellent welfare comparison of intermediaries versus markets see Allen and Gale (1995).

### 2.1.1 Response to price signals

By its very nature, a relationship-based system does not pay much attention to market or price signals. In such a system financing cannot take place in the presence of intense competition. Hence, it will only occur when competition is somehow restricted, and hence when prices tend to be not very informative. But this indifference to price signals also becomes self-fulfilling. If investment decisions are not driven by prices, then prices become less effective in providing economic directions because they reflect less information.

Evidence of this unwillingness to respond to market signals is provided by Hoshi, Kashyap, and Scharfstein (1991). The study looked at a sample of Japanese firms in the late 1970's to mid-1980's that had close ties to banks and compared their investment behavior with a sample that had no such ties. The investments of firms that had no bank ties were very sensitive to the cash flow the firms generated from operations; when operating cash flows decreased sharply, so did investment spending, and vice versa. By contrast, the investments of firms with strong ties to the banks were significantly less sensitive to the firms' operating cash flow.

One possible interpretation of these findings is that banking relationships make it easier for firms to obtain external funding for value-adding investments, thus making them less dependent on their own cash flows. But recent events in Japan suggest a different explanation. More often than not, the companies' continuous access to bank funding on favorable terms allowed them to ignore the signal sent by their poor cash flows, and to continue investing. By continuing to invest in these circumstances, such firms may well have been destroying long-term value rather than increasing or preserving it. Even if the banks were failing to provide the managers of these firms with the right signals, it appears that the stock market was attempting to do so. For, as the study also reports, the firms with banking relationships in their sample had lower "Tobin's q" (or market-to-replacement cost) ratios than firms without bank ties. And, to the extent that Tobin's q is a reliable proxy for a firm's investment opportunities, the stock market was expressing skepticism about the likely payoff from such investments.

Peek and Rosengren (1998) provide additional evidence that relationships can distort the allocation of funds. In the early 1990's, Japanese banks increased their lending to the U.S. commercial real estate market. At their peak in 1992, the U.S. subsidiaries of Japanese banks accounted for one-fifth of all commercial real estate loans held in the U.S. banking sector. Then, in response to a severe decline in real estate prices in Japan, the Japanese banks cut back their lending in the United States even as U.S. prices were rising (and lending by non-Japanese banks increasing), while at the same time expanding their lending in the domestic Japanese market where prices were plummeting. Thus, rather than cutting their losses in Japan – or at least not abandoning their profitable opportunities in the U.S. – Japanese banks poured more money into their unprofitable Japanese relationships.

This is not to say that the arm's-length system is perfect in the allocation of resources. Because outsiders have little power, management can indulge itself far more in empire-building without triggering an intervention by outsiders. This problem has been labeled the "agency costs of free cash flows" by Michael Jensen (1986). The arm's-length system, however, can use takeovers to rectify this problem when it gets excessive.<sup>5</sup> By contrast, the problem of misallocation of resources due to the lack of price signals in the relationship-based system is more severe, because it lacks a self-activating mechanism to correct it. In

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<sup>5</sup> If anything, managerial empire building is less severe in a relationship-based system, precisely because financiers have the power to intervene extensively and absorb free cash flows from successful firms.

fact, even if price signals were accurate, the power structures in the relationship-based system may not allow movement in a direction indicated by the prices.

In market-based economies, however, there is a virtuous circle at work: In the process of relying on prices for guidance, the arm's-length transactions that predominate in these economies also have the beneficial effect of making prices more informative. Thus, the more transactions that come into the market, the more likely it is that decisions made on the basis of price are likely to be the right ones.

In sum, one downside of a relationship-based system is that price signals are obscured. The consequence could be a widespread and costly misallocation of resources.

### *2.1.2 Sensitivity to Bubbles*

Recent experience might suggest that paying too close attention to market prices may also be harmful, especially if those prices seemingly depart from fundamentals. The euphoria that gripped investors in the United States in recent years has, according to some, led to egregious mispricing (see, for example, Lamont and Thaler, 2001), which in turn has led to what in hindsight is obviously inappropriate real investment. Clearly, the benefit of paying attention to stock prices relative to the benefit of ignoring them depends on their signal-to-noise ratio. We do not have any studies that have attempted to quantify this.

What we do know is that the signal to noise ratio in stock prices varies widely across countries. In recent work, Morck et al. (2000) decompose stock price volatility into market-wide and firm-specific elements. While market-wide movements are not necessarily bubbles, this decomposition gives us a sense of how much firm-specific information is contained in stock prices (and to the extent that market moving events are publicly observable, this decomposition offers us a measure of how much additional information stock prices provide about individual firms). The proportion varies widely across countries. In a developed market like the United States market-wide movements explain only 3 percent of the daily variation of individual stocks, while in developing countries such as Taiwan and Poland they explain far more (approximately 40 percent and 60 percent respectively). Thus, markets differ in the amount of company-specific information that is incorporated into stock prices and more developed markets produce more of it. Thus markets are more likely to be useful in guiding investment in developed countries, and there is some evidence of this (see Wurgler, 2000).

Even though they focus less on stock prices, relationship-based systems are not immune to bubbles either. In fact, the Japanese economy, traditionally a relationship-based system, has been deeply affected by the bubble in land prices that developed over the 1980s. Interestingly, the transmission channel has been different. Japanese banks did not react to stock prices directly, but to increases in the collateral value of land (see Kashyap et al., 1990). The bursting of the bubble in land prices left the Japanese economy with a huge debt overhang, which has still not been worked off.

In sum, relationship-based financing and arm's-length financing are sensitive to different type of euphoria. The former is more sensitive to institutional euphoria, the latter to individual euphoria. Which form of euphoria is more frequent, and which one has the worse consequences is a topic that awaits future research.

### *2.1.3 Market power*

Another consequence of prices being obscured in a relationship-based system is that the financier's information is largely private especially when the projects being financed consist

of intangible assets such as intellectual property. As a result, in a relationship-based system the initial financier tends to appropriate a greater share of the return to new technologies. On the one hand, this depresses the incentives to form new start-up ventures, making entrepreneurship in high tech industries a rare phenomenon. On the other hand, it facilitates the exploitation of new technologies by existing firms (Hellwig, 2000), Rajan and Zingales (2001a and c), increasing their scope (hence the proliferation of conglomerates in relationship based systems). Which system is more effective depends on the type of innovation and on the organizational incentives of existing firms to undertake this innovation, a topic we will return to momentarily.

#### *2.1.4 Illiquidity*

Because information is so concentrated in a relationship-based system, financial assets become very illiquid. Since the relationship is specific to the intermediary and borrower, the intermediary becomes indispensable to collecting on loans. Loans will be illiquid in that outsiders will not be able to extract as much repayment if the loan is sold as can the insider institution. Not only does this mean that the intermediating institution has highly illiquid assets, it also means that its cost of capital will be high unless it can somehow commit not to extract rents from its investors (given that its expertise is so critical in collecting on loans, once financed, intermediary managers can demand a high rent for their specialized skills). Financial intermediaries can commit to their investors by raising finance through hard-to-negotiate instruments such as demand deposits (see Diamond and Rajan, 2001). Nevertheless, extensive rigid financing of this kind leaves the economy overexposed to adverse shocks that can take down intermediaries. Intermediary distress is all the more dire in relationship economies because their financial assets are so illiquid and have so limited a market.

#### *2.1.5 Risk*

By its very nature, a relationship-based system tends to smooth shocks intertemporally. As we have just discussed, the prospect of future rents induced Sumitomo to intervene and bail out Mazda in the early 1970s. By contrast, in an arm's-length system, competition eliminates future rents, destroying any incentive to pay for the cost of a bailout. More importantly, in an arm's-length system such intervention cannot even be insured contractually at a reasonable cost. Unconditional insurance would create the conditions for severe moral hazard, while the right contingent insurance might be too complex to be written into a contract. Hence, relationship-based systems smooth individual shocks better than arm's-length systems.

The opposite is true for systemic shocks. Because of lack of transparency and disclosure, in relationship-based systems intermediaries finance assets that only they understand (Diamond and Rajan, 2001a, 2001b). Not to absorb a massive amount of rents, they have to credibly commit to pay out collections to depositors. This requires them to issue hard claims; the hardest being demandable claims subject to runs. Thus, in the natural course of financing illiquid relationship-based assets, financial intermediaries have to take on financial risk. To reduce this risk, the government has to promise intermediaries contingent capital, which in turn causes them to bet on the same risks such as real estate or emerging market lending, knowing full well that they will be rescued if only they sink together.

Contrast this with the arm's-length system where the accent is on providing small investors the confidence to invest directly in firms. The arm's-length system permits more flexibility in explicit contracts, which allows the system to absorb adverse shocks. Moreover, the healthy

can be distinguished from the terminally ill after a shock and can be dealt with differently – not everyone has to sink or swim together as in the relationship system. Finally, unaffected outsiders have the ability to invest and revive the system, as they obtain confidence from the very same channels that inspire confidence in small investors. Thus, in general, arm's-length systems can deal with system wide adverse shocks better.

All this suggests that if an adverse shock affects an economy unevenly, the arm's-length system will be better able to identify and isolate the truly distressed and prevent them from taking the system down. In a relationship system, the pain is likely to be widely shared and in ways that make more sense politically than economically. This kind of system-wide insurance can be beneficial in smoothing temporary economic shocks (Diamond and Dybvig, 1983; Allen and Gale, 1997 and 2000), but prevents necessary adjustment when shocks reflect the necessity for structural change.

### *2.1.6 The Kinds of Assets Financed by Each System*

Taken together, the above discussion suggests that pure relationship-based systems tend to have a comparative advantage in financing physical-asset-intensive industries rather than high technology research and development based industries. For one, physical-asset-intensive industries are typically more traditional and well understood. As a result, the absence of market signals about their profitability is less likely to be a problem in making investment decisions. Second, because they are well understood, it is unlikely that a large amount of rents will accrue to the financing intermediary. Moreover, the borrower has the collateral to entice fresh lenders if the existing ones prove overly demanding. Finally, since loans are well collateralized by physical assets, they are liquid, so the concentration of information in the system will not be a barrier to financing these assets.

Conversely, arm's-length systems will have a comparative advantage financing industries with intangible assets; hence Carlin and Mayer's (1998) finding that equity- and skill-based industries tend to do more research and development in economies with better developed accounting standards.

An intriguing recent study fortifies our view that relationship-based systems are more capable of financing projects where the ratio of tangible to intangible assets is large. Houston and James (1995) study the financing arrangements of 250 public firms in the United States. They find that firms with relationships to single banks tend to use less bank debt in proportion to total debt as their market-to-book ratio (a measure of the ratio of intangible to tangible assets) increases. By contrast, when firms have relationships with multiple banks, the ones with higher market-to-book ratios tend to use more bank debt in proportion to total debt. This suggests that firms tend to avoid becoming dependent on a single bank when they have high market to book ratios, perhaps because they fear the bank may have too much power to extract rents and direct strategies, or because the bank itself will find the asset too illiquid.

### *2.1.7 The Types of Firms Financed in Each System*

Not all firms can take equal advantage of the two systems. Financing in an arm's-length system has higher fixed costs, but enjoys better economy of scale. To enjoy the benefits of disseminating information, a company has first to produce such information in a credible way. This entails significant fixed costs. The cost of setting up a computerized inventory system, which automatically records cost of inputs and sales, does not differ greatly for a "mom and pop" store than for a large retail chain. Once this system is in place, the cost of

producing information that can be easily verified by the accountants, and thus by the market, is small. Hence, the relative cost of producing information is lower for larger firms.

Similarly, different organizational structures have a different propensity to generate information. As Novaes and Zingales (forthcoming) show, multi-layer hierarchies tend to produce more verifiable information than two-layers' ones to reduce the rent middle managers can appropriate.<sup>6</sup> This information, generated for internal purposes, can easily be used for external purposes at no additional costs. Similarly, because franchisees have to generate more information for the purposes of reporting to the franchiser, they are more able to raise external finance (Petersen and Rajan, 2003) from distant, arm's length investors.

Thus, large multi-layer organizations can benefit from arm's-length markets much more than small owner-operated firms. Not surprisingly, the United Kingdom, which has more developed arm's-length markets, has larger firms than any other European country (Kumar et al., 2000) and there is a positive correlation between development of arm's-length financial markets and the separation of ownership and control (La Porta et al., 1999).

### *2.1.8 Financing of Innovation*

An arm's-length system, where there is more public information, gives new firms, attempting new technologies, a better chance of obtaining financing. The reason is that there are many investors from a variety of backgrounds, each of whom has the basic information to assess a new technology. While each investor may be biased, and each investor may receive only part of the information that is collectively known, each investor investigates the firm's prospects independently. Thus the firm gets a number of chances to attempt to convince investors of the merits of its technology. If the technology is sufficiently new, it may need all those chances to obtain financing somewhere.<sup>7</sup>

The relationship-based system works in a very different way. Given the paucity of public information and the limited access in a relationship-based system, the firm has, at best, one or two well-informed financiers who can make an assessment. Since information in such a system is generated through contacts rather than posted publicly, those financiers are likely to talk to each other. So while collectively they may have more information, and make a better decision about whether to finance the new technology, the firm will not get much more than a single chance to make its case.

If the technology is a minor modification of tried and tested technologies, the payoffs from funding eventually successful technologies is likely to be small, at least relative to the costs of funding failures. A relationship-based system is likely to be better here because it has the ability to probe deeper and screen out most of the likely failures. The system's conservatism, as reflected in the extreme scrutiny that innovations are subject to, could lead to the rejection of some worthwhile innovations. But this is not very costly relative to the gains from not funding failures. In normal times where change is incremental (and innovations are as likely from within the establishment as from outside), the relationship system works well.

If, however, we are in a period of extraordinary change, where revolutionary innovations may enable firms to create entirely new profitable markets, the free access market-based

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<sup>6</sup> In fact, in their model multilayer hierarchies produce an excessive amount of verifiable information with respect to what would be optimal in the absence of agency problems. They do not consider, however, the positive effect this information might have on the firm's ability to finance its projects.

<sup>7</sup> This argument is based on work by Sah and Stiglitz (1986). See also Allen (1993) in the Mayer and Vives volume for a different application of the Sah and Stiglitz point.

arm's length system is better in making sure that most of these get financed, even though many failures will also be financed. The value from the successes far outweighs the costs of failures at such times so using independent but informed evaluations works better in financing innovation.

One can even extend the parallel to venture capital, the latter being an institution that seems to emerge only in free access financial systems with high disclosure. Venture capitalists invest only a little at a time. They continue only projects that look as if they will be great successes, but quickly cut short those that look as if they will be dogs. Thus they reap a bonanza from the successful projects, while losing little from those that fail. This sort of return profile makes them willing to experiment. As a result, entrepreneurs need not be dejected by a single rejection by a venture capitalist since there may always be some other venture capitalist who sees things more their way. Successful entrepreneurs in market-based financial systems often have tales of how they peddled their projects from door to door until they eventually found a venture capitalist willing to put pen to checkbook.

Venture capitalists themselves, let alone such tales, are rare in relationship-based economies. They are rare because venture capitalists need a reliable system of disclosure, not just because they fund young companies, but also because they get their reward only when they grow these firms to the point that they can be sold on the public equity markets. And for the public investor to pay an adequate price for the shares that are sold, they have to be confident of what is truly going on inside the firms. Reliable disclosure makes such confidence possible (Black and Gilson, 1998; and Kukies, 2001).

Even if financing is available, however, it is not safe to assume, as we have done, that established firms will want to undertake projects that lead to extraordinary change. Technological change can render obsolete the expertise of those who run the firm.<sup>8</sup> Young firms are therefore special when there is a potential for extraordinary change because they have no vested interests in the status quo. More disclosure and transparency, and the associated free access to finance, helps the emergence of new firms. In stark contrast, the relationship system is particularly bad at giving newcomers a chance. Newcomers invariably have to become part of the system before they can get finance, because no one can trust their accounts, or will give them access before they pay their dues. No wonder the average age of corporations making initial public offerings on the Deutsche Börse between 1960 and 1990 was 57 years, an age which would be deemed ancient for American corporations (Rydqvist and Hogholm, 1995). Within the United States itself, the deregulation of banking in the 1980s led to a substantial increase in competition in the financial sector in states that deregulated. This was tantamount to a shift from an uncompetitive, relationship system before deregulation to more competitive, arm's length financing afterwards. Not surprisingly, the rate of creation of new enterprises jumped significantly after deregulation (Black and Strahan, 2002).

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<sup>8</sup> Even though IBM's personal computer set the industry standard, it was Intel and Microsoft that constantly pushed the technology forward, and reaped much of the gains. Part of the reason why IBM did not exploit the possibilities in the personal computer better is because IBM's agenda was set by top management who had cut their teeth on mainframes. In an attempt to avoid cannibalizing mainframes, they placed constraints on the development of the personal computer, which undermined their leadership position in the PC industry. For example, "IBM crippled its own Displaywrite word-processing package by limiting its ability to handle electronic mail, which became a hugely popular application. This was back in the days when IBM still thought of typing as something to be done on a mainframe or minicomputer, and the mainframe people wanted to protect their mainframe-based email system, called PROFS, by keeping email off PCs. In addition, mainframe executives argued that the hundreds of thousands of secretaries who had gotten used to PROFS and the mainframe version of Displaywrite did not really want any new features."

Relationship finance therefore has at least two strikes against it at times of great change. First, the way the system scrutinizes new ventures makes it more likely that more out-of-the-ordinary new opportunities will be left without finance than in the arm's length system – decision by consensus is inherently conservative. Second, the opaque nature of the system makes it discriminate against outsiders, especially newcomers. Thus, those who have the greatest incentive to force change have the least resources to do so. Since the players in the system lack both the mindset and the incentive to innovate, relationship finance is a serious drag in times of great change.

But there is a third strike also. Relationship systems tend to protect mature incumbent firms that get into trouble. In normal times, this lends stability to the system. In times of extraordinary change, this can keep resources far too long in unproductive uses. There is no better example of the ambivalent nature of the protection afforded by financiers to firms than the above-mentioned rescue of Mazda by Sumitomo bank in the 1970s.

Was the rescue worth it? The answer is not obvious. In the short run, Mazda recovered. It may, however, have been a mistake to ignore the signals obtained from Mazda's poor performance. A re-interpretation of the Mazda example is that perhaps Mazda deserved to be taken over by another automobile manufacturer – after all it was in trouble again in the early 1990s when it had to be rescued by Ford! Maybe it should have been shut down thus reducing the overcapacity the automobile industry has been plagued with in recent years. Who knows whether the net long-run benefits to Mazda from Sumitomo – the guarantees and the credit, less the interest payments, the tied deals, and the long-term submission to Sumitomo's direction – were positive? And even if positive, did this deal make sense for Sumitomo's depositors and equity holders, or for Japan as a whole?

Unfortunately, as we have argued, the relationship system makes it difficult to undertake such a cost-benefit analysis – after all, that is precisely why the system comes into existence. How does one value the loss borne by other members of the *keiretsu* for being “encouraged” to buy Mazda cars? How big are the profits forgone by Sumitomo for spending so much of its managers' time in rescuing Mazda? It is precisely this opacity that condemns the system to make mistakes. And all the mistakes go in one direction, towards protecting unviable incumbents. The fabled long-term view of the relationship system may, in fact, be very short term.

### 2.1.9 Political Controllability

There is another obvious, but often ignored, difference between the two systems: the ease with which they allow governments to intervene. A relationship-based system is naturally more prone to government direction because it depends more heavily on the government to maintain the restrictions on competition that enable it to work. Furthermore, in an opaque environment financial intermediaries need some government supervision to be perceived as reliable. This supervisory power, however, gives the government a powerful lever it can use to coerce these intermediaries into actions it deems desirable. This exercise of (im)moral suasion is not unique to relationship based systems. The New York Fed's intervention in the rescue of Long Term Capital Management in 1998 suggests arm's length systems are not immune. But the very nature of a relationship-based system makes these interventions easier, less visible, and thus more appealing politically.

The opacity of the relationship-based system makes it easier for the Government to intervene also because it hides the real cost of this intervention. In the 1930s, the Japanese Nationalist government used the banking system, which it had previously helped consolidate,

to channel more resources to munitions production. Such intervention required neither an explicit bill, nor a visible item in the government budget. As such was much more appealing. There is, thus, a natural symbiosis between interventionist government and relationship-based systems: Relationship-based intermediaries prosper under government-sanctioned protection from competition and interventionist governments enjoy greater flexibility and power in a relationship-based system.

## *2.2 Relative Efficiency of the Two Financing Modes in Different environments*

Thus far, we have compared the strengths and weaknesses of the two financing modes without considering the environment in which they operate. Clearly, their relative merits may differ with the environment.

Arm's-length financing, for instance, relies heavily on legal protection and judicial enforcement, while relationship financing is largely self-enforcing, requiring just the protection of the most basic property rights. Hence, in countries with poor legal protection and judicial enforcement, not only is relationship financing preferable, it is the only option.

The benefits produced by an arm's-length system are greatest when more information is available, when this information is reliable, and when it can be easily diffused. Thus, an economy with larger and more formally organized firms can profit the most from an arm's length system.

The benefits of an arm's-length system are also greatest in economies where the information disclosed is reliable. This requires, for instance, that there be no implicit penalty to disclosing this information. Systems where the visibility to the tax authorities changes depending on the amount of information in the public domain do not meet this condition. Similarly, systems where corruption is widespread also fail this condition, because they place the reliable discloser at a competitive disadvantage in paying bribes to the opaque competitor.

Reliable disclosure also requires appropriate penalties for lack of timely disclosure.<sup>9</sup> Recent scandals in the United States show how doubts on the reliability of information can undermine investor's confidence. If this occurs even in the country with the best tradition of pursuing accounting frauds, one can only imagine what happens in the other ones.

Finally, information needs to be transmitted. Petersen and Rajan (2002) show how the diffusion of standardized information and cheap telecommunications has increased the distance between borrower and lender in the United States. Thus, when information can be easily diffused, competition to lend increases, and the benefits of an arm's-length system also increase. In this sense, the advent of the Internet is playing a big role in making arm's-length financing more attractive.

The benefits of an arm's-length system are also linked to the size and diversity of the potential market that can receive the information. In a small homogenous market with a limited number of players, the benefit of competition among lenders is minimal. When the potential financiers are few, they can collude at the expense of entrepreneurs, as venture capital firms appear to have done before the expansion of the venture capital market in the late 1990s. But a limited market size and the lack of industrial diversity also decrease the potential

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<sup>9</sup> Penalties can be excessive so that firms disclose more than socially optimal. For instance, firms may be forced to disclose trade secrets or competitive strategies, which may lead them to underinvest in business innovation. It may also force them to disclose all the information they have without making judgements as to what is important, leading investors to be no wiser.

benefits provided by prices. The information conveyed by prices is useful because it may lead to a reallocation of resources. In a small homogenous economy, with limited opportunities for reallocation, the benefit of having this information is also limited and so is the value added of an arm's-length system. Hence, the comparative advantage of a relationship system versus arm's-length system depends crucially on the size and diversity of the potential market they are facing.

In sum, relationship-based systems perform better when markets and firms are smaller, when legal protection is weaker, when there is little transparency, and when innovation is mostly incremental, rather than revolutionary. Thus, relationship-based systems work best in the early stages of industrialization where the industries to be financed are physical asset intensive, where the legal system is ineffective, and where skill-based or idea-based industries are of limited import. They also work best in small, homogenous, closed economies.

By contrast, arm's-length financing delivers superior results when markets and firms are bigger, when firms are more formally organized, in the presence of better legal enforcement and transparency, and when innovation tends to be more revolutionary. Thus, as economies develop and focus more on knowledge-intensive industries as engines for growth, a hybrid is perhaps more effective. There is then the need to improve transparency, judicial efficiency, and mechanisms for speedy resolution of financial distress so that arm's-length markets can function effectively and aid the process of economic growth.

### *2.3 Financing Modes and Financial Systems*

Thus far, we have just characterized the two extreme modes of financing. No real world financial system could be classified as purely arm's-length or purely relationship-based. They all rely on both modes of financing. The difference rests in the relative importance of these modes and how they are combined. U.S. venture capital, for instance, seems to combine the best elements of both financing modes. As in any relationship-based financing, the intense involvement of the venture capitalist in the firm (the typical lead venture capitalist visits the entrepreneur once a month on average and spends four to five hours at the facility during each visit (Gorman and Sahlman, 1989) ensures the financier a monopoly on the firm financed, guaranteeing her both a return on her investment and an incentive in working out any necessary restructuring. But the contractual time limit on the funds raised, the restrictions on the amount of funds invested in each venture, and the availability of a liquid market to unload her investments eliminate any risk of a hold up by the initial financier, typical of relationship-based financing.

By contrast, short-term financing of long-term relationships, as it was the case of East-Asian systems, seems to combine the worst of both modes. From the borrower perspective, the short-term nature of the financing substitutes for the lack of information. But from a welfare perspective, these arrangements are deficient both from the point of view of information aggregation and from the point of view of insurance, since the lack of any monopoly power dissuades the financiers from being involved with the borrower in case any problem arises.

Of course, which type of financing is prevalent and which combination emerges is driven, at least in part, by the surrounding legal and institutional environment. Where information cannot be credibly generated and diffused, short-term financing might be the only available alternative.

### ***2.4 What Recent Corporate Scandals in the United States Suggest about the Relative Desirability of the Two Systems?***

Since the United States are often used as the prototype of an arm's length financial system, the flurry of U.S. corporate scandals can easily be interpreted as evidence against this type of system. This would be a hasten conclusion. While the U.S. financial system is more market-based than that of any other country, it is not purely market based. And while the United States has better disclosure rules than most countries, its rules are far from perfect. In fact, most of the problems that are surfacing now in the United States have to be attributed more to the distortions created by relationships in the absence of proper disclosure than to the intrinsic limitations of arm's-length systems.

Consider for example the IPO spinning practices under investigation by Spitzer, the New York Attorney General. According to Spitzer, several investment banks used their discretionary power in allocating IPO stocks to secure captive business. CEOs of technology firms were *personally* awarded hot IPO stocks of other firms underwritten by the investment bank as a way to woo future business. This practice, if ascertained, is the ultimate example of the distortions that arise in an opaque system. It is the lack of mandatory disclosure of IPO allocation practices that gives investment bankers this power. In a transparent market this power will not exist.

Similarly, the failure of Arthur Andersen to uncover the accounting irregularities at Enron is most likely due to the excessively cozy relationship between Enron and its auditors, relationship cemented by millions of consultancy fees. And the ease with which Enron could conceive its accounting practices from the market was made possible by the lax disclosure standards in consolidating subsidiaries' accounts.

In sum, the recent U.S. corporate scandals suggest that even the United States have a long way to go if they want to make their system truly transparent. These scandals do not, however, undermine the arm's-length system per se. To the contrary, they show that opaque relationships breed abuses and frauds, not only in East Asia and Russia, but also in the United States. It is not a cultural issue, thus, it is an issue of incentives.

Where recent events may undermine the case in favor of arm's length systems is in the investment distortions produced by the so-called internet bubble. According to preliminary estimates the telecommunications boom and bust may have triggered nearly half a trillion dollars of excess investments (Roberts, 2001). As we already discussed, however, bubbles do not arise just in arm's length systems. After ten years, Japan is still suffering the consequences of its real estate bubble, mostly fueled by its banks' lending practices. Unfortunately, a comparison of the magnitude of these distortions and their likelihood in the two types of systems still awaits future research.

## **3. The Political Economy of Financial Markets**

Thus far, we have only discussed the relative efficiency of the two systems. But they also have important re-distributional effects and it would be naïve to believe that these play no role in the actual choice of which system prevails. This is especially true because many of the environmental conditions, which determine the relative efficiency of the two systems, such as legal enforcement and mandatory disclosure, are not exogenously given but are the results of political choices. These choices are very much affected by distributional issues.

Hence, to understand the prevalence of different financial systems and their evolution we have to quickly review the political economy of finance.

### **3.1 *Why Finance is not Liked***

A large body of literature (for a survey see Levine, 1997 and Rajan and Zingales, 2001b) shows that financial development is beneficial. Then, why anyone would oppose it? The answer has to be found in the distributional effects of increased access to finance and in the relative political power of the groups affected.

As Rajan and Zingales (2003a and 2003b) argue, financial development could pose a threat to established large industrial firms, a group we will call industrial incumbents. In normal times, these incumbents do not require a developed financial system. They can finance new projects out of earnings – as most established firms do – without accessing external capital markets. Even when their business does not generate sufficient cash to fund desired investments, they can use the collateral from existing projects and their prior reputation to borrow. Such borrowing does not require much sophistication from the financial system – even a primitive system will provide funds willingly against collateral. Because of their privileged access to finance in underdeveloped financial systems, incumbents also enjoy a positional rent. Anybody else who starts a promising business has to sell it to the incumbents or get them to fund it. Thus, not only do incumbents enjoy some rents in the markets they operate in, but they also end up appropriating most of the returns from new ventures.

All these rents will be impaired by broadening the access to finance. A more efficient financial system facilitates entry, and thus leads to lower profits for incumbent firms. From the perspective of incumbents, the competition-enhancing effects of financial development may offset the other undoubted benefits that financial development brings.

Critical to the above arguments is that financial development aids the entry of new firms, thus enhancing competition. There is some evidence for this. In a comparative study of the textile industry in Mexico and Brazil around the beginning of the twentieth century, Haber (1997) shows that Brazil, following its political revolution, liberalized finance, and saw the textile industry grow faster and become less concentrated than the Mexican textile industry. Porfirio Diaz, the Mexican dictator during this period, was much more a prisoner of incumbent interests. Mexico's financial markets remained underdeveloped during his regime, with the consequence that Mexico's textile industry, while starting out larger and relatively more competitive, had less entry, and ended up smaller and more concentrated than Brazil's. Studies of larger samples of countries support the idea that financial development facilitates entry by newcomers. Rajan and Zingales (1998b) find that the growth in the number of new establishments is significantly higher in industries dependent on external finance when the economy is financially developed. Johnson et al. (2000) find in a study of trade credit in transitional economies that an important consequence of an effective legal system in a country is that a firm offers more trade credit to new trading partners.

Financial underdevelopment is not the only barrier to entry. Incumbents with political influence could restrict or prevent entry into their industry directly through some kind of licensing scheme. In Rajan and Zingales (2003a) we discuss why, in spite of the existence of other, more direct instruments, to prevent entry, financial repressions might still be used.

### **3.2 *Relationship-based versus Arm's-length Finance***

While incumbents might dislike finance in general, they dislike arm's-length finance even more. The development of arm's-length markets requires better enforcement and more transparency, which will directly hurt incumbents' traditional ways of doing business through contacts and relationships. Consider some examples. In 1991, the Bronfman family was permitted by the Canadian tax authorities to move two billion Canadian dollars to the United

States without paying capital gains taxes. When the auditor general complained that the transaction “may have circumvented the intent of the tax code”, the government finance committee attacked him for violating the Bronfmans’ right to privacy.<sup>10</sup> In a similar vein, in India borrowers till recently could take money from one state-owned bank, default, and obtain a fresh loan from another state-owned bank. Banks could not share information about defaulters, in part because there was a law (which has recently been superseded) preventing widespread dissemination of information about defaulters. The privacy of defaulters and their right to maintain access to the public till were deemed more important than the public’s money, but this is of course natural in an economy dominated by incumbents.

Incumbent financiers may also not fully appreciate change. While financial development provides them with an opportunity to expand their activities, it also strikes at their very source of comparative advantage. In the absence of good disclosure and proper enforcement, any financing that is not against solid collateral is relationship-based. The incumbent financier gathers information from his wide-ranging informal contacts rather than from publicly available sources. He recovers payments not by using the legal system, but by threatening and cajoling, using the many informal levers of power he has developed over the years. Key, therefore, to his ability to lend are his relationships with those who have influence over the firm such as managers, other lenders, suppliers, and politicians. Equally important is his ability to monopolize the provision of finance to a client so that his threat to cut off credit carries weight. Such monopolies are more likely if there are no public records of a client’s repayment history so that the client is locked in to his financier because only the latter knows his credit history – any other financier approached by the client would be wary of lending, wondering whether he was being approached only because the incumbent financier had deemed the client too risky.

Opaque borrower histories and inadequate legal infrastructure provide formidable barriers to entry behind which the incumbent financier adapts to enjoy large profits. Disclosure and impartial enforcement tend to level the playing field and reduce barriers to entry into the financial sector. The incumbent financier’s old skills of being well connected become less important, while new ones of credit evaluation and risk management become necessary. Financial development not only introduces competition, which puts pressure on the incumbent financial institution’s profitability and its relationships, it also makes the financier’s skills – his human capital – redundant.

One could also argue for the existence of political incumbents. To the extent that financial development makes matters transparent, and constrains the political favors they can do or the power they have, they may also be opposed.

In short, free markets tend to jeopardize ways of doing business that rely on unequal access. Thus, not only are incumbents likely to benefit less from financial development, they might actually lose. This would imply that incumbents might collectively have a vested interest in preventing financial development and might be a small enough group (Olson, 1965; Stigler, 1971) to organize successfully against it.

They may also have the ability to affect policy: Incumbents are a well-defined, focused, small group. In small countries, they have been to the same elite schools, frequent the same clubs, and often intermarry. They may be able to keep finance underdeveloped, because those who benefit most from development, potential entrants, are small, poor, and unorganized while the vast ill-informed majority do not know enough, or feel enough pain, to stir out of their complacency.

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<sup>10</sup> Cited in Morck, Strangeland, and Yeung (2000).

### 3.3 *When does Finance Develop?*

If incumbent industrialists and financiers ordinarily oppose financial development when does it take place? Financial development will take place only when the country's political structure changes dramatically, or when the incumbents want development to take place.

By creating a fresh power structure, political change can foster anti-incumbent institutions, one of which may be financial infrastructure. For example, a number of new mortgage banks and institutions like the Credit Mobilier were supported by the government of Louis Napoleon after its coming to power in 1848. They were meant as a counter to the Bank of France and the Rothschilds who were thought to be sympathetic to the deposed monarchy (Cameron, 1961). More recently, Weber and Davis (2000) find that a country's transition to a multi-party democracy increases its estimated rate of creation of a stock exchange by 134% during the subsequent three years.

If, however, we examine a period of relatively little structural political change, we should see finance develop faster when both financial and industrial incumbents will it to do so, and slower when both are against it. When one of these powerful groups is for development, while the other is against, predictions are likely to be more ambiguous.

Incumbent incentives are likely to be powerfully affected by competition, especially that emanating from outside their political borders, which they cannot control. As we show in Rajan and Zingales (2003a), periods when and countries where borders were open to foreign trade and capital coincided with periods of intense financial development. This is true even controlling for the endogeneity of the decision to open up borders.

### 3.4 *When does Arm's-length Finance Develop?*

Arm's-length finance, and the institutions necessary for it, is particularly worthy of opposition for two reasons. First, the creation of those institutions will undermine the incumbents' way of doing business and their source of comparative advantage. Incumbents derive their power from their local knowledge and connections, which allow them to get around otherwise Byzantine systems. Better laws, better demarcation of property, and the creation of public credit rating agencies would create a vibrant competitive financial market, bring in outside lenders, and make these skills redundant, thus jeopardizing the fat profits they make. Anticipating this, the incumbent financiers would rather not see the market develop at all. Second, incumbents know that once allowed to flourish arm's-length markets are intrinsically hard to tame. Hence, they concentrate their effort on preventing them from taking off.

The infrastructure for arm's-length markets stand the best chance to be created when the incumbents' (or the Government) financing needs are so large not to be easily satisfied with traditional arm's-length financing. The enormous financing requirements of railroads in the United States (one billion dollars up to 1867 and 10 billion up to 1890) lead to the development of public markets for corporate debt and later for stock.<sup>11</sup> Financial institutions such as investment banks, including the famous Morgan bank, emerged to underwrite and distribute these securities and to reassure European investors that the money was properly invested. Thus the financing needs of the railroads lead to the creation of financial infrastructure in the United States that was then available to finance other industries that came later. Similarly, to finance the war effort the U.S. government issued over \$21.5 billions in bonds over two years, at a time when the total amount of corporate securities issued in the previous ten years was only \$16.6 billion.<sup>12</sup>

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<sup>11</sup> See Engelbourg and Bushkoff (1996) and Chandler (1990).

<sup>12</sup> These figures are from Mahoney (2000).

To place this large quantity of bonds, commercial and investment banks had to sell to people who had never invested in securities before. From 1917 to 1919 the number of investors who held Treasury bonds exploded from 300,000 to 21 million.

Governments can, perhaps unwittingly, retard or even block the rise of arm's length markets by substituting for some of their functions. For example, in Europe, some governments intervened directly and indirectly in financing the construction of railways. While the stated purpose was to develop local transportation quickly, the perhaps unforeseen effect was to retard the development of a liquid corporate bond market.

Arm's-length markets also develop under the pressure of outsiders. The conditions that level the playing field for outsiders tend also to level the playing field for insiders and increase the level of competition. In this sense the European Union effort to integrate markets has been a natural force in favor of the expansion of arm's-length markets.

#### **4. Political Institutions and Financial Systems**

Arm's length markets cannot flourish without the very visible hand of the government, which is needed to set up and maintain the infrastructure that enables participants to trade freely and with confidence. But who has an interest in pushing the government to create and support this infrastructure? For even though everyone collectively benefits from the better goods, the services, and the equality of access that competitive markets make possible, no one in particular makes huge profits from keeping the system competitive and the playing field level. Thus everyone has the incentive to take a free ride and let someone else defend the system. A competitive market is a form of public good and, somewhat paradoxically, collective action is needed for its maintenance.

By contrast a relationship-based system has natural political supporters. The opacity and collusive practices that sustain a relationship-based system entrench incumbents at the expense of potential new entrants. In such a system, for example, banks can lock in clients, extracting a rent. This rent provides both the motivation and the resources to fight against an opening up of the system.

This is not to say that the anti-market forces will always prevail even when arm's-length markets are much more efficient. It simply says that the political power is naturally biased in favor of retaining, or moving towards, a relationship system. How strong this bias is, however, depends also on the nature of the existing institutions. In what follows we concentrate on two institutions that played and will be playing a major role in Europe: the structure of the central bank and the degree of decentralization of political power.

##### **4.1 Central Bank**

We can view the central bank as simply an industry regulator à la Stigler (1971) or as an independent Government agency, with its own separate objectives, à la Wilson (1989). In both cases the prediction would be the same. Central banks prefer a relationship-based system.

In the traditional Stiglerian approach, the central bank, qua regulator of the banking industry, is captured by the interest of the firms it regulates (i.e., the banks). Since we already argued that banks want to preserve their existing monopoly, they will oppose greater transparency, preventing an arm's-length market from developing. Clearly, banks' ability to capture the regulator very much depends upon the concentration of the banking industry. A

highly concentrated banking sector will have both greater interest and greater ability to influence the central bank against markets.

While Stigler's model has some predictive power, it is often too simplistic. Government agencies are not completely at the mercy of the firms they regulate. As Wilson (1989) argues, pride in one's job and a sense of mission are important factors in motivating regulators and are useful in predicting their behavior. Similarly, Government agencies care greatly about their sphere of power and fight to expand it.

Interestingly, even if we adopt this more nuanced approach, the final conclusion does not change: central banks tend to be anti-market. The function of a central bank, and thus its institutional goals, are twofold: to conduct monetary policy typically with the aim of maintaining price stability and to preserve the stability of the banking system. Both objectives are more easily achieved in a relationship-based system.

As Kashyap and Stein (1997) have argued, an important channel through which monetary policy works is by affecting banks' balance sheet. This affects the supply of bank loans to firms and thus, eventually, the amount of investments. For this channel to work, however, firms have to be heavily dependent on bank credit. If they can easily find alternative financing arrangements (such as commercial paper or other market based instruments), central banks will have less power to control credit. Cecchetti (1999) compares the impact on GDP of interest rates changes depending on the type of legal system a country has. He finds that in countries with a German code, monetary policy is almost twice as effective as in countries with a Common Law system. Countries with a French and Scandinavian legal system fall in between. Since La Porta et al. (1998) show that countries with a Common Law system have more developed markets, Cecchetti's evidence suggests monetary policy is indeed more effective when relationship-financing is more widespread. Thus, central bankers have a natural bias in favor of relationship-based systems. This does not mean central bankers will always oppose markets. The development of a money market, for instance, clearly helps central bankers in their job. We only claim that on average central bankers' attitude will be less pro market, than justified by efficiency considerations alone.

The relationship between central banks' goals and their attitude toward markets is more complex when it comes to the other objective of a central bank: ensuring the stability of the financial system. In normal contingencies a relationship-based system guarantees more stability to the system. Relationships guarantee banks a rent and this rent makes bankers more averse to take wide gambles, which might dissipate those rents. At the same time, free markets introduce more opportunities and these make the job of a regulator more difficult. From both these viewpoints a relationship-based system is preferable for a central banker.

Markets are superior in providing the flexibility to foster disruptive change. Relationships, as we saw in the Mazda case, are hard to terminate. Hence, banks tend to continue lending to a sector, even when this sector no longer has a future. The absence of informative prices, typical of a relationship-based system, only exacerbates this problem. Hence, in times of major change a farsighted central banker should prefer a more arm's-length system, if she recognizes such times are coming. The problem is that the movement from one system to another requires a very long time. A last minute move, without the appropriate infrastructure, could be counterproductive. Therefore, it would take an extremely far-sighted central banker to promote markets in the anticipation of a possible disruptive change in the future.

Not only do central banks have a natural bias against markets, they also have a natural bias against institutions that support free markets. Transparency makes their job more difficult as does free capital mobility across countries. Free capital movements restrict a central bank's ability to conduct an independent monetary policy, reducing its discretionary power. Not

surprisingly, central bankers have a bias against free capital movements. But, as we show in Rajan and Zingales (2003a), free capital movements are a key force in reducing the incumbents' resistance to the development of arm's-length markets.

Finally, in all the above discussion we have assumed that central banks are fully independent from their Government. If they are not, though, their bias in favor of a relationship-based system only increases. As we already discussed a relationship-based system makes Government intervention less visible and less costly. Thus, the Government will pressure the central bank to maintain a relationship-based system. In addition, in a more opaque system the central bank's supervisory role becomes more powerful, because investors can only rely on the central bank's opinion in deciding where to invest their money. Hence, an interventionist Government able to influence the central bank's actions could use its supervisory function as a powerful tool to surreptitiously direct bank lending toward desired sectors or firms, as did the Nationalist Japanese government in the years before and during World War II.

#### *4.2 Central versus Local Authority*

The second institutional feature we want to analyze in connection to the central bank's attitudes toward arm's length markets is the degree of decentralization of power. A completely decentralized structure, where all the powers reside at the local level, is not good for markets. Arm's-length markets enjoy large economies of scale. Thus, at the local level the benefit of creating an arm's-length market are very limited. Furthermore, the vested interest against markets can more easily lobby a local authority, inducing it to introduce all sorts of anticompetitive restrictions.

To the extent they face external competition, however, local authorities will be more pro markets. If they are unable to restrict legally the competition coming from outside their jurisdiction, they will be forced to update their institutions to allow their firms to survive.

The cause of markets is also greatly enhanced by the formation of common trade areas across countries. First of all, expanding the size of the potential market increases the relative efficiency of an arm's-length system, enhancing the cause of markets even at a political level. Second, the need to ensure equal treatment to foreign goods and firms forces an increase in the level of transparency and arm's-length dealing, which levels the playing field even for domestic firms. For example, the European Commission has often intervened (most recently in the Volkswagen case) to sanction anti-takeover mechanisms introduced by the national governments in some domestic companies. These interventions were justified in the name of the equal treatment across European states, but had and still have the effect of opening up the market for corporate control. Another advantage of trade zones formed by heterogeneous states is that vested interests tend to be diverse and find it more difficult, at least in the beginning, to get organized and lobby at the super-national level.

Similarly, the conflict of interest between local and central authority will tend to produce more information, and more information is beneficial to the development of arm's-length markets. More generally, the conflict between local and central authority naturally creates more freedom. Not surprisingly, the Italian city-states emerged in the shadow of the conflict between the Empire and the Catholic Church and the Euromarket emerged and prospered on the ambiguity of who had to regulate foreign financial institutions domiciled in London.

While market integration across countries is beneficial for the development of markets, political integration might have opposite effects. First of all, the more encompassing the integrated entity, the less external competition it faces. The central political authority, thus, regains a monopoly power, amplifying the negative effects of its regulation. Consider an

extreme, but illustrative case. Suppose after a severe stock market crash, the European Union decides that too many companies brought to market were little more than a dream and a prayer. It decides to tighten the rules under which companies can issue shares on the market, a move that incumbents across countries might well support because it starves entrants of financing. Given that these rules would apply immediately in all neighboring countries that a new European firm might conceivably think of tapping, that potential entrant might be hard pressed to raise finance under the new rules, making the rules much more effective and making incumbents in each country more eager to press for them with the Union. By contrast, if a single country tried to impose those rules, it would see the potential entrant go to a neighboring country to raise finance. Thus the migration of business to friendlier political entities is a very strong disciplinary force for keeping policies market-friendly. This force is suppressed when neighboring political entities coalesce.

This greatly enhanced regulatory power also increases the incentive for anti-market interest to lobby for protection. In a world where there is political competition, the effect of local legislation can be easily undone by neighboring states, destroying the return to lobbying. In a broader political union, however, this risk is minimized, increasing the return to lobbying. Since the anti-market forces have a comparative advantage in organizing and lobbying, a broader political union can eventually turn out to be more anti-market, as the initially fragmented vested interests coalesce, than a trade zone with weaker political affiliations or even a loose confederation of states.

## **5. European Financial System: Past, Present, and Future**

Now that we have reviewed both the economic and political considerations that lead to the prevalence of different financial system, let us analyze how these considerations shaped the recent history of European financial systems and how they are likely to influence its immediate future.

### ***5.1 How did Europe Fall Behind?***

The first question we want to address is why, until the beginning of the 1980s, Europe was so much behind in financial development, especially in the development of financial markets. Does it have to do with structural, economic, or cultural differences between Europe and the United States? If so, are these differences likely to persist? Or does this have to do with political considerations? How will these political considerations likely to play in the future?

La Porta et al. (1997) attribute differences to the type of legal system prevailing in different countries (whether the country is based on Common Law or Civil Law), while Stulz and Williamson (2001) suggest it is the cultural influences of the dominant religion. While these structural factors could play a role (see later), we think they can be easily overestimated if we do not take a longer historical perspective. This is what we do in Rajan and Zingales (2003a). There we document that not only were the recently observed differences between countries not so stark then, they were quite the reverse before World War I to what we see now. Austria, Belgium, France, Germany, the Netherlands, and Sweden all had bigger equity markets (relative to GDP) than the United States, they had more companies publicly traded per million people and they financed more of their gross fixed capital formation through equity issues. Not all the differences in market development can or should be attributed to deep structural factors. Other forces, which change over time, play an important role. In fact, as we argue in Rajan and Zingales (2003a), structural factors may have influence because of the

way they shape and modify political forces rather than because they have a direct influence per se.

Specifically, the important precipitating event was the Great Depression. It triggered a generalized mistrust in the functioning of the market and a demand for political intervention. This demand was at least as strong on the other side of the Atlantic as in Europe. The National Recovery Administration, which was set up under the New Deal, sought to fix prices in industry in order to eliminate “ruinous” competition, while Regulation Q attempted to do the same thing in the banking sector. But the effects on the financial systems were quite different.

In Europe (and Japan) the 1930s saw a period of repression of markets and massive intervention of the government in the allocation of credit. Taking advantage of the crisis, the government took over the major banks (Italy) or increased its share of deposits (France), where between 1930 and 1937 the share of deposits of public or semi-public institutions grew from 43 percent to 63 percent (Gueslin, 1992). As we discuss in Rajan and Zingales (1993b), many of these interventions proved to be long lasting. In Italy, the Government started to re-privatize the banks only in 1994. As late as 1979, a Bank of France publication reported that 43 percent of all credit to the economy was made with some kind of privilege or subsidy, and 25 percent of corporate lending was subsidized directly (Zysman, 1983). Until the early 1990s, industrial firms in Germany had to obtain approval from the Federal Ministry of Economics for permission to issue commercial paper and long-term bonds. Approval was granted only if the credit standing of the issuer was satisfactory and if the application was supported by a bank.

By contrast, in the United States, the New Deal legislation laid down the foundations for an expansion of markets in the post World War II period. What can explain these differences?

The United States is more federal in character. States have a say, and there is political competition between states. Even though barriers had been erected to the flow of goods across national borders, the United States had a nationwide market for goods and services. So state legislation would not restrain the actions of out-of-state competitors and, thus, could end up only hampering local companies. In addition, powerful local politicians, who favored local incumbents, opposed the centralizing tendencies that were rampant in other countries. This was particularly reflected in the financial arena where there was an old tradition in the United States of opposing the concentration of East coast financial power (Roe, 1994).

Another important difference was the fragmentation of the financial system. As Table 7 shows the United States had by far the least concentrated banking sector. This was no

Table 7: Concentration of the banking sector in 1930

Country	Branches per per Bank	Population per Bank (000)
Belgium	14.16	92.6
Denmark	3.06	19.6
France	9.46	160.9
Germany	3.06	176.1
Italy	1.91	104.80
Netherlands	24	1,305.50
Spain	5.08	105.90
Sweden	33.83	204
United Kingdom	613.44	2,481.3
United States	1.14	16.2

Source: Grossman (1994)

accident. As Roe (1994) argues, this fragmentation has historically been the result of a populist fear of large financial institutions. This fragmentation prevented the United States from going the way of Europe and Japan. Investment banks did not see eye to eye with commercial banks, nor did large banks make common cause with small banks. The variety of conflicting private interests and the variety of political support they could count on at both the state and national level, more than any other factor, may have been the reason why outcomes in the United States were not more anti-competitive. There was no way markets could be closed down without hurting some powerful faction in the financial sector.

That the United States escaped the wholesale anti-market changes that took place in other countries does not mean that political interests were not at work. But because political power was more widely distributed, the legislation that emerged did not reflect the interests of just one set of incumbents. For example, small banks obtained federal deposit insurance, which ensured their stability, and capped their funding costs. Large banks had been trying to coordinate limits on deposit interest payments since at least 1905 (Benston, 1994). The Banking Act of 1933 (also known as the Glass Steagall Act) gave them what they wanted by prohibiting interest payments on demand deposits and limiting interest payments for time deposits. Investment banks benefited from the securities and banking legislation passed in 1933 and 1934. Not only were commercial banks prohibited from underwriting corporate securities, but also legislation reduced competition within the investment banking industry (Mahoney, 2000).

At the same time, the populist fear of large financial institutions also retarded the formation of a central bank. Even when this was formed in 1913, it was formed with relatively weak powers. Hence, the Fed was never a strong anti-market force in the United States.

After World War II, two other factors played a role in maintaining the United States more pro market. First, the U.S. financial system emerged from WWII stronger and more efficient than those of the other countries. Hence, U.S. financial institutions had more to gain from open financial markets. Not surprisingly, they played a crucial role in preventing the Bretton Woods agreement from making international capital movements more difficult (see Helleiner, 1994).

The second factor was the Dollar Exchange System, which prevailed after World War II. Because it allowed for restrictions on international capital movements, the Bretton Woods agreement opened up the possibility of independent monetary policies. Such a possibility, however, was very much linked to the ability of countries to restrict international capital movements and, more generally, all forms of arbitrage international capital arbitrage. This naturally induced an anti-market bias in European central banks. By contrast, the Dollar Exchange System allowed the United States to conduct an independent monetary policy regardless of external consideration. As a result, the U.S. monetary authorities had less to fear from markets.

## ***5.2 What Triggered the Change in the 1980s?***

The collapse of the Bretton Wood system in 1971 and the imbalances created by the two subsequent Oil Crises increased dramatically international capital movements, with two important effects on domestic financial systems. First, exchange rates could not be fixed by the government, but had to be credible in the marketplace. This forced tighter fiscal discipline, reducing the scope for the government subsidies that were essential to grease the relationship-based systems.

Second, the possibilities for domestic companies to tap foreign markets for funds, increased the competition in the domestic financial systems, breaking some traditional

relationship and forcing domestic intermediaries to develop. For example, in Japan in the early 1980s, corporate bond markets were tiny. This was because commercial banks controlled the so-called “Bond Committee,” an official body to which each firm desiring to issue unsecured bonds (bonds that are not backed by collateral) had to apply. Ostensibly, the reason for this arrangement was to ensure that companies marketed only safe issues to the public. The *real* reason was that banks used the Bond Committee to protect their commercial lending business. Hitachi – then a blue-chip AA-rated firm (AAA being the highest rating) – couldn’t obtain permission to issue bonds and thus had to borrow from the banks at high rates.

The growth of the Euromarket and the opening of Japan’s borders to capital flows in 1980 finally loosened the banks’ longtime stranglehold on companies. Large Japanese firms now bypassed domestic markets to borrow in the Euromarket. There, they faced no collateral requirements, and they could freely issue a wide range of instruments in different maturities and currencies. Whereas Euromarket issues accounted for only 1.7 percent of Japanese corporate financing in the early 1970s, they accounted for 36.2 percent of it by 1984. The Bond Committee was forced to disband – not because the government or the banks saw how inefficient it was, but because cross-border competition dictated it.

Improvements in the technology to process and diffuse data also made arm’s-length markets more appealing, since prices could transmit and aggregate much more information and competition could arise also at a distance.

Finally, the cause of markets was also fostered by the expansion in international trade. As we show in Rajan and Zingales (2003a and 2003b), trade openness generates competition, forcing the development of domestic financial institutions.

Besides this worldwide trend, in Europe some additional factors pushed in favor of markets. The creation of a common market for good and services magnified the effect of a surge in international trade. Not only did the increase in the size of the market enhance the efficiency of an arm’s-length system, it also changed the underlying political economy. By making more discrete, and thus more politically visible, the choice of the level of openness to trade and capital movements, the European Union made it also more difficult for specific interest groups to lobby for individual protections. The choice was no longer between adhering to the abstract principle of free trade or catering to a powerful interest group (a choice invariably resolved in favor of the latter), but between staying inside the European Union or leaving it, a much more visible, discrete, and politically charged decision.

In fact, membership in the European Union tied governments’ hands not only in the granting of special exemption from foreign competition, but in several other directions as well.

The European Commission deemed subsidies to government-owned firms illegal if they distorted competition across member states. And the fiscal discipline imposed by the EMS system first, and the euro later, made it impossible for any member state to continue the previously pervasive policies of generalized government credit subsidies. Once this option was eliminated, existing firms started to realize the limitations of the cozy relationship based system directed by the government and started to demand more markets.

Finally, the rules and regulations enacted to make the European market a level playing field for all the member states, contributed to make it a level playing field also for new entrants, increasing competition and destroying many of the pre-existing cozy relationships among incumbents.

### 5.3 The Impact of the Euro

What impact, if any, had the introduction of the euro on this overall change? Since so many factors are at play, it is difficult to isolate the effect of just this variable. Nevertheless, we attempt to do so by looking at the market for corporate debt. One confounding factor is the contemporaneous surge in financing needs of telecommunication companies (ECB, 2001). For this reason we have to identify the level of bond issues for countries that adopted the euro and countries that did not.

Unlike Detken and Hartmann (2002) we are not interested in the share of bonds issued in euro, but how the introduction of the euro has changed the importance of corporate bond financing in the individual countries. This is the market where the impact of a common currency should have been felt the most. National currencies were segmenting the corporate bond market in Europe. On the one hand, firms were reluctant to issue large amount of long-term bonds denominated in foreign currencies, because of the exchange risk involved in repayments. On the other hand, the demand for bonds denominated in national currencies was limited because institutional investors, such as pension funds, had to face exchange risk as well. Can we thus observe an increase in the amount of corporate debt following the introduction of the euro?

The data assembled by the Bank of International Settlement allows us to answer this question. The BIS data has the amount of domestic corporate debt outstanding in each country since 1989 and international corporate debt by country of issuer since 1993. With these data we can compute the net debt issues as a first difference. We then normalize it by the GDP. In Table 8a we report the summary statistics for domestic net debt issues, international net debt issues and the sum of the two.

Table 8: Corporate debt before and after the euro

Net bond issues are computed as difference of the level of bond outstanding as reported by the BIS. We sum domestic corporate bonds and international corporate bonds issues by firms domiciled in the country and normalized by a country GDP.

#### Panel A: Summary Statistics

Variable	Mean	Median	St. Dev.	Min.	Max.	N
Net issues of domestic corporate debt	0.004	0.001	0.013	-0.037	0.105	411
Net issues of int. corporate debt	0.004	0.001	0.010	-0.025	0.072	292
Net issues of total corporate debt	0.009	0.004	0.020	-0.034	0.129	258

#### Panel B: Regression Analysis

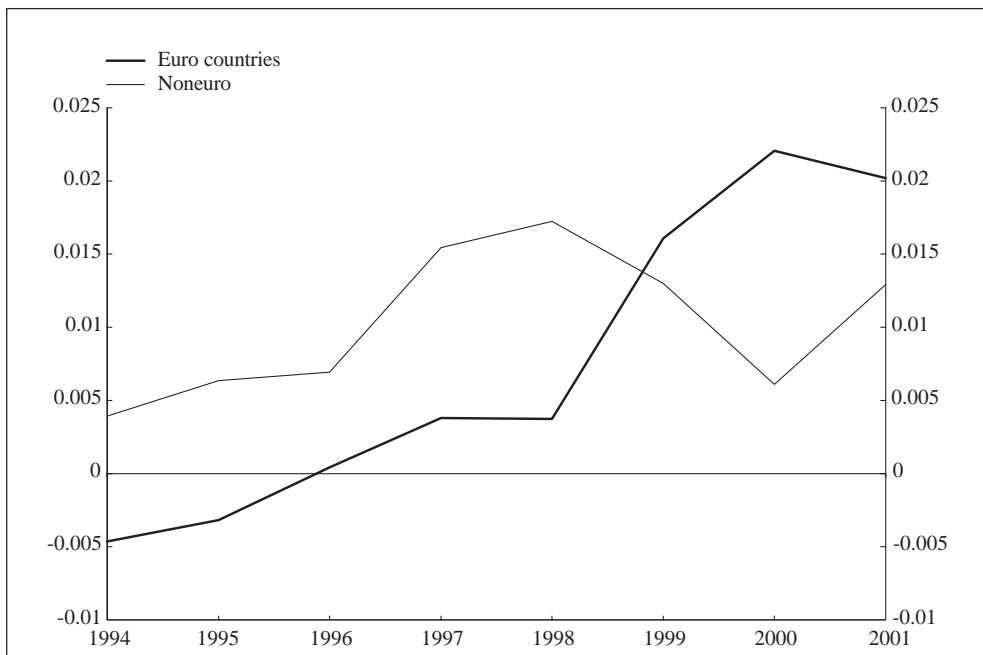
Dependent variable:	Net issues of domestic corp. debt	Net issues of intern. corp. debt	Net issues of total debt
Euro dummy	0.006 (0.003)	0.007 (0.003)	0.018 (0.005)
Year fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
R-squared	0.3608	0.2357	0.4741
N	411	292	258

Source: BIS

In Table 8b we regress these different measures of debt issues on country and year dummies and an indicator variable equal to one in the countries that adopted the euro in the years subsequent to the introduction of the euro. As Table 8b shows, regardless of the measure used, the introduction of the euro had a positive and statistically significant effect on the amount of net debt issues. The effect is quantitatively very large: the amount of debt issues almost triple after the introduction of the euro. This effect can graphically be seen in Figure 4, where we plot the average total net debt issues in countries who adopted the euro and in countries that did not, both before and after the introduction of the euro. Before the adoption of the euro euro-region-countries had average total net debt issues of almost zero, while non-euro countries had an average of 1% of GDP. After the introduction of the euro, non-euro countries remained at that level, while euro countries jumped to net issues of 2% of GDP per year. These results are consistent with Santos and Tsatsaronis (2002), who find a decrease in the underwriting fees following the introduction of the euro.

Figure 4: Net bond issues around the introduction of the euro

Net bond issues are computed as difference of the level of bond outstanding as reported by the BIS. We sum domestic corporate bonds and international corporate bonds issues by firms domiciled in the country and normalized by a country GDP.



In sum, the euro seems to have had an independent effect in promoting the development of arm’s-length markets in countries that adopted it. The effect is quantitatively very large.

#### *5.4 Is this Trend Likely to Continue?*

In the last two decades two major forces contributed to the development of markets in Europe: the increased openness of the worldwide economy and the process of economic and political integration taking place in Europe. Both these forces are unlikely to be as strong in the near future.

As we argue in Rajan and Zingales (2003a), free movement of goods and capital is essential to keep in check the local vested interests who want to repress finance and in particular arm's-length finance. But the political consensus in favor of free trade and free capital movement is eroding, under the effect of international crises and the antiglobalization movement (e.g. Stiglitz, 2002). The possibility of a new reversal in financial development is made more likely by the new intellectual climate triggered by the fall out of the Internet bubble and by the highly publicized corporate scandals in the United States, all of which creates a fertile domestic anti-market political climate. When coupled with the increasing willingness of politicians to sacrifice free trade for political expediency (see e.g. Bush's steel tariffs), the political climate does not look good for the expansion of markets.

At the same time, the positive benefits of the process of European integration may be running their course and further integration might actually start to exercise a negative influence. The more power that will be transfer from local government to the Union, the more it will become a monopolist, attractive prey for incumbents who want to solidify their economic power by repressing financial development.

#### *5.5 What is the Right System for Europe?*

Before we start worrying, however, we need to make the case that a further development of arm's-length markets is indeed in the interest of European economies. But this is not an easy task. At the end of the 1980s, many Western economists, impressed by the successes of the Japanese economy, were chanting the praise of the relationship-based system. There were repeated calls for the U.S. to adopt new laws that would permit financiers to take a longer view of their investments, and to move toward the more relationship-based investing model that prevails in Japan (Porter, 1992). In 1998 the same system was relabeled "crony capitalism" and became the scapegoat for the East Asian crisis. Now the pendulum is swinging back. It is only the sorry plight of Japan, laid low by a lost decade of government ineptitude that keeps academics from extolling the virtues of a more managed relationship-based economy once again.

As we explained in Section 2, the trade-offs between the systems are complex. A relationship-based system could be the best option during certain phases of development and could be inadequate for others. Till the 1970s, relationship-based systems such as Germany, Japan and France, had much higher growth rates than market based-systems of the United Kingdom and the United States. In the last ten years the ranking has been reversed. The United States grew at a 3.8 percent annual rate, England at 3.4 percent, while France grew at 2.8 percent, Germany at 1.9 percent, and Japan at a paltry 1.2 percent rate.<sup>13</sup>

Rather than making a blanket judgment about the superiority of one system over the other, it makes more sense to qualify it based on the environmental conditions each country faces. To begin with, the relative benefits of an arm's-length system have been increased by the process of European integration, culminated with the introduction of the Euro. While the

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<sup>13</sup> Author's calculations from the IFS statistics.

process of international integration has removed many barriers to entry, enhancing both national and international competition, the introduction of the euro has removed many of the remaining economic and psychological barriers. European countries now face a large integrated market, where information can travel freely as can competition. Since it is intrinsically opaque, a relationship-based system, cannot take full advantage of these new opportunities, while an arm's length system can.

The stage of development of most European countries also favors arm's-length systems. Since many are close to the world technological frontier, they face uncertainty on where best to invest their resources (and where best to divest them). In this phase they can greatly benefit from the information that prices convey in an arm's-length system (see Rajan and Zingales (1998a)).

Of course, this benefit is relatively more important for the more developed Northern European countries, than for the less developed Southern ones.

The changes that firms are undergoing in developed countries also favor an arm's-length system. As we discussed in Rajan and Zingales (2000) physical capital is becoming less important, while human capital is taking the center stage. Relationship-based systems find it more difficult to finance human capital firms, especially when these human capital-intensive firms are involved in disruptive innovation. Hence the relative benefit of an arm's-length system may grow as firms change their nature.

But probably the most important factor playing in favor of arm's-length markets is the phase of technological innovation we are currently living. The last decade has been characterized by what management scholars label "disruptive innovation". While the dislocation stemming from technological change is not new, its pace and magnitude have increased tremendously. As we already discussed, a relationship-based system finds it difficult to finance this innovation. It also finds it extremely difficult to stop financing obsolete firms. Technological change also affects the demand for human capital: traditional skills become rapidly obsolete, while new ones are needed. This requires greater human capital mobility, across firms, and across sectors, which a relationship-based system will find harder to facilitate. Overall, thus, several environmental factors favor arm's-length systems.

In developing the transparent legal, regulatory, and supervisory infrastructure to govern arm's-length markets, however, Europe trails the United States. Furthermore, European countries differ greatly in their preparedness. In Table 9, we report the levels of some common indicators of quality of laws, law enforcement, and transparency. In the first two columns we report the La Porta et al. (1998) indicator of quality of law protecting arm's-length investors (shareholders and creditors). The first is an indicator of the rights minority shareholders have to challenge the incumbent managers. While the United States has a perfect score of 5, the European's score is less than half (2.3). But European countries score better as far as creditors' rights are concerned: on average they have a score of 2 out of five versus a U.S. score of 1. In both cases, however, Northern European countries (Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, Netherlands, Sweden, U.K.) have a much higher score than Southern European countries (Greece, Italy, Portugal and Spain).

The backwardness of European infrastructure, and in particular of the Southern European infrastructure, is more evident when we look at measures of effective enforcement. Djankov et al. (2002) have computed the time it takes to collect a bounced check and to evict a tenant who does not pay rent in different countries, which we report in column 3 and 4. While in the United States it takes only 54 days in Europe it takes on average 227 days. But this average hides an enormous difference within Europe. In Northern European countries the average is 171 days, while in Southern European countries is 382. In many countries, however, checks

are not used as a standard mean of payment, thus this figure may not be very relevant. The same result, however, emerges if we focus on the total number of days it takes to evict a tenant who does not pay. While in the United States it takes only 49 days, in Europe it takes five times as much. Once again, however, there is a big difference between Southern and Northern Europe (348 vs. 202).

Table 9: The north-south institutional divide

Shareholders' rights is an index from 1 to 5 of the rights minority shareholders have against incumbents. Similarly creditor' rights is an index from 1 to 5 of the rights creditors have in bankruptcy. Both are from La Porta et al. (1998). Days to collect a check is the total number of days (completion of service, trial, and enforcement) it takes to collect the money on a bounced check.

	Shareholders' rights	Creditors' rights	Days to collect a check	Days to evict a tenant	Efficiency of judicial system	Rule of law	Corruption	Tax compliance	Accounting standards	Value of control	Average number of employee
Austria	2	3	434	547	9.50	10.00	8.57	3.60	54	0.38	NA
Belgium	0	2	120	120	9.50	10.00	8.82	2.27	61	NA	12.5
Denmark	2	3	83	225	10.00	10.00	10.00	3.70	62	0.08	11.5
Finland	3	1	240	120	10.00	10.00	10.00	3.53	77	0.02	5.7
France	2	0	181	226	8.00	8.98	9.05	3.86	69	0.02	7.1
Germany	1	3	154	331	9.00	9.23	8.93	3.41	62	0.10	10.3
Greece	2	1	315	247	7.00	6.18	7.27	2.36	55	NA	NA
Ireland	4	1	130	121	8.75	7.80	8.52	3.55	NA	NA	NA
Italy	1	2	645	630	6.75	8.33	6.13	1.77	62	0.37	4.4
Luxembourg	NA	NA	210	380	NA	NA	NA	NA	NA	NA	NA
Netherlands	2	2	39	52	10.00	10.00	10.00	3.40	64	0.02	11.9
Portugal	3	1	420	330	5.50	8.68	7.38	2.18	36	0.20	6.0
Spain	2	2	147	183	6.25	7.80	7.38	1.91	64	0.04	4.0
Sweden	3	2	190	160	10.00	10.00	10.00	3.39	83	0.07	10.4
United Kingdom	5	4	101	115	10.00	8.57	9.10	4.67	78	0.01	9.6
Euro area average	2.00	1.64	252.92	264.27	8.20	8.82	8.37	2.89	60.40	0.14	7.7
EU average	2.29	1.93	227.27	243.36	8.59	8.97	8.65	2.94	63.62	0.12	7.8
Southern Europe	2.00	1.50	381.75	347.50	6.38	7.75	7.04	2.06	54.25	0.20	4.8
Northern Europe	2.40	2.10	171.09	201.70	9.48	9.46	9.30	3.54	67.78	0.09	9.9
United States	5	1	54	49	10.00	10.00	8.63	4.47	71	0.01	NA

Source: Djankov et al. (2002). Days to evict a tenant is the total number of days (completion of service, trial, and enforcement) it takes to evict a tenant that does not pay. Source: Djankov et al. (2002). Judicial efficiency is an assessment, produced by country risk rating agency Business International Corp, of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms". The scale is from 0 to 10 and the source is La Porta et al. (1998). Rule of law is the "assessment of the law and order tradition in the country produced by the country risk rating agency International Country Risk (ICR)". Scale from zero to 10, with lower scores for less tradition for law and order, source: La Porta et al. (1998). Corruption is an index of the pervasiveness of corruption (higher number means less corruption), source: La Porta et al. (1998). Tax compliance is the "assessment of the level of tax compliance". Scale from 0 to 6 where higher scores indicate higher compliance. Data is for 1995. The source is the Global Competitiveness Report 1996 as reported in La Porta et al. 1999. The value of control is the premium paid to acquire a controlling block lock as a percentage of the value of equity. The block premia is computed taking the difference between the price per share paid for the control block and the exchange price two days after the announcement of the control transaction, dividing it by the exchange price two days after the announcement and multiplying the ratio by the proportion of cash flow rights represented in the controlling block. Source: Dyck and Zingales (2003). The average number of employees is the ratio between the total number of workers and the total number of firms in 1992-92. Source Kumar et al. (2000). NA = not available.

Survey-based measures of the quality of legal enforcement lead us to the same conclusion. In column 4 we report the level of judicial efficiency, which is an assessment, produced by country risk rating agency Business International Corp, of the “efficiency and integrity of the legal environment as it affects business, particularly foreign firms”. In column 5 we report the “assessment of the law and order tradition in the country” produced by the country risk rating agency International Country Risk (ICR).

In both these measures Europe trails the United States: judicial efficiency is rated on average 8.2 vs. 10 out of 10 for the United States, and law and order is rated 9 in Europe vs. 10 for the United States. But more significant is the divide between Northern and Southern Europe. While Northern European countries have an average score very similar to that of the U.S. (9.5 both in judicial efficiency and in rule of law), Southern European countries (Greece, Italy, Spain and Portugal) have a score of only 6.4 in the first and 7.8 in the second.

Arm’s-length systems need publicity. Thus, any institutional incentive to hide information is very detrimental. When corruption and tax evasion are widespread, insiders have a strong interest in hiding information, to facilitate tax evasion or the payment of bribes. While in these two dimensions the relative performance of Europe and the United States is similar, the differences in performance between Northern and Southern Europe is again remarkable.

We measure corruption with a survey-based index produced by risk rating agency International Country Risk (ICR), where lower scores indicate that “high government officials are likely to demand special payments”. While Europe on average has a better corruption record than the United States, Southern Europe has a much lower score than Northern Europe (7 vs. 9.3) and the United States. The same is true for the quality of the tax enforcement. As a measure of the effectiveness of the taxation system we use an index developed by the World Competitiveness Report, which assesses the level of tax compliance. The index goes from 0 to 6 where higher scores indicate higher compliance. Along this dimension the United States perform much better than Europe (4.5 vs. 3), but once again the major divide is between Northern and Southern Europe.

Much of the benefits of an arm’s-length system come from the dissemination of information. If information is not produced and disclosed, however, these benefits do not materialize. Also in this dimension there is an important difference between the United States and Europe and within Europe itself. The Center for International Financial Analysis and Research has produced in 1990 an index of quality of accounting disclosure, by examining and rating companies’ 1990 annual reports on their inclusion or omission of 90 items. United States companies report on average 71 of the 90 items, European companies only 64. But once again this average hides the within Europe difference. Companies from Northern European countries report 68 items while companies from Southern Europe only 54 (only slightly more than half of the items they should be reporting).

The reader might be legitimately suspicious of these indicators, since they mostly rely on surveys and attempt to measure the quality of the regulatory framework by looking at the input (laws and regulations) and not at the economic output. However, we arrive at a similar conclusion if we focus on an outcome-based measure. Arm’s-length markets can develop only when insiders cannot appropriate too much value at the expense of outsiders. Dyck and Zingales (2003) produce a cross-country estimate of the value captured by insiders in different countries (their measure is the premium controlling shareholders pay to acquire control in a publicly traded company – an indication of what they can extract from the company at the expense of public shareholders). We report these estimates in the ninth column of Table 9. Here we note a remarkable difference between the United States and Europe. While in the United States insiders can appropriate on average only 1 percent of the

value of a company, in Europe they appropriate 12 percent. Once again, there is a great divide between North and South. In Northern European countries the value appropriated is only 9 percent, while in Southern European countries it is 20 percent.

Finally, in our theoretical analysis we highlighted the existence of an interaction between a firm's organizational structure and its ability to take advantage of arm's-length markets. Bigger, more formally organized, firms naturally produce more information and hence, they can more easily disseminate it. Also on this dimension there is a remarkable difference between Northern and Southern Europe. The average size of an enterprise is 10 people in Northern Europe, but only 5 in Southern Europe.<sup>14</sup>

In sum, technological and market considerations suggest that during this economic phase an arm's-length system is to be preferred. Europe, however, lags behind in the creation of the legal and regulatory infrastructure that allows arm's-length markets to function and this gap is particularly pronounced in Southern Europe. For effective arm's-length markets to develop, there is a serious need of reforms.

There is a serious danger that reforms facilitating markets will benefit Northern Europe and the more developed regions of Southern Europe but can bypass or even harm the underdeveloped regions of Southern Europe, which do not have the necessary institutions to take advantage of markets. As Guiso et al. (2002) have shown, monetary and even political integration are not sufficient to obtain an effective integrated market. Within Italy, significant differences exist in the quality of the law enforcement between the North and South. This is associated with enormous differences in the ability to obtain financing: an entrepreneur is twice as likely to be denied financing in certain areas than in others. As Guiso et al. (2002) argue, this difference might be at the root of enormously different levels of economic development.

This suggests that a move towards markets can exacerbate differences between countries and, more importantly, within countries. In order for Southern Europe to take full advantage of markets and ensure the benefits are spread widely, it is important that the institutions supporting markets be strengthened across the board. But till this is done, some regions may not see the benefits of markets while, at the same time, they will face the loss of the relationship system. This will increase political tensions and increase the divide between various constituencies such as small and large firms, regional and national banks, etc.

In sum, we believe despite the current anti-market climate the relevant question is not whether Europe should be moving toward an arm's-length system. It should. The real question is whether there is the political will to move in that direction and, more importantly, whether countries can improve their internal infrastructure so that they can benefit fully from this move.

### ***5.6 How to Prevent a New Reversal?***

In Rajan and Zingales (2003b) we discuss a number of possible policies aimed at ensuring an enduring public consensus in favor of markets and reducing incumbents' interest and incentives to repress them. Besides awareness, these policies include a reform of the taxation system aimed at penalizing inefficient owners and a safety net aimed at protecting individuals rather than the existing institutions. Instead of repeating these suggestions, in this context we

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<sup>14</sup> The data are from Kumar et al. (2000). From their list we omit Austria, because it reports only 8 sectors, and Greece, which reports statistics only for enterprises with more than 10 employees. Including the data for Austria (average of 63 employees) will only exacerbate the divide.

ask what implications our approach has for the current debate on the institutional future of Europe. Since the issues at stake are very complex, we analyze them only from one point of view: their impact on the development of arm's-length markets. This is clearly a partial view, but one which needs to be taken into consideration in the overall debate.

Probably the most important political decision facing Europe right now is the tradeoff between an enlargement of its borders and acceleration of the political union. From a financial market perspective, the first option is vastly superior. Enlargement will increase economic competition, reducing the resistance to financial markets. At the same time, the introduction of new divergent interests inside the European Union will make coordination and lobbying more difficult, reducing the political threats to markets. By contrast, further steps toward political integration will reduce political competition and strengthen the central authority, increasing the return to lobbying at the central level. Both these effects will tend to reduce the political support for markets.

Another crucial topic in the institutional debate is the unanimity rule adopted at the European Commission level. Many people question the viability of such a rule in the future, especially in face of an enlargement. While not ignoring the costs of a decision making process based on unanimity, we also see its benefits. A unanimity rule makes it more difficult for a central authority to exercise its monopoly power, reducing the risk that it will be used against markets. Unanimity rules preserve the status quo. To the extent the status quo is biased towards markets, it prevents speedy reversal.

Finally, a central issue in the institutional debate is the allocation of the authority to supervise banks. Our analysis suggests different answers depending on the nature of the power allocated. On the one hand, leaving merger reviews to national institutions impedes the formation of a European level market for corporate control in banking. On the other hand, centralizing the supervisory function will rejoin the role of supervisor and lender of last resort increasing the ECB's powers of moral suasion, which future European government might use to direct the allocation of credit or the rescue of favored banks. By contrast, maintaining a division of roles and even some conflicts of jurisdiction will reduce the power of both institutions to the larger good of markets.<sup>15</sup>

## Conclusions

In the last twenty years the European financial system has become more market-based. This movement has been the result of a fortunate coincidence of favorable international conditions (increase in international trade and capital movements), economic conditions (improvements in processing and transmission of information that have made arm's-length markets more efficient) and local political conditions (the transition from separate national governments to a more unified European government).

While the economic conditions in favor of arm's-length markets do not seem to have changed, the political conditions favoring them have. The anti-globalization movement is creating political support for protectionism and politicians in both the United States and Europe have started pandering to it. The revelations of corporate scandals in the United States has undermined the moral standing of market-based economies at a time when the bursting of the Internet bubble is weakening its economic credibility, strengthening anti-market forces worldwide. In Europe, these forces may find additional support from the distributional effects of the movement towards markets, which benefit less (or perhaps even penalize) regions in

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<sup>15</sup> For an in depth analysis on this topic see Carletti and Hartmann (2002).

Southern Europe. Finally, we argue that the completion of the economic integration and the beginning of the political integration might trigger a shift in the pro-market stand of the European Union.

Our analysis has clear implications on what the European Union should do to buck this anti-market trend. First, it should promote structural reforms in Southern European countries, in order to reduce the distributional effects of an expansion of arm's length markets. Second, it should focus on enlargement of the Union, to increase economic competition. Finally, it should maintain a division of power between local and central authorities at all levels, including the central bank ones, to prevent a reduction in political competition.

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## Comment

Franklin Allen

This paper summarizes and extends the authors' recent research on financial systems (see, e.g., Rajan and Zingales (2003a) and (2003b)) and applies the analysis to the European financial system. The first section starts by considering the state of Europe's financial system around 1980. At that time, Continental Europe had much less developed financial markets and a more concentrated and important banking sector than the United States. During the subsequent two decades Continental Europe's system changed dramatically. There was a significant increase in the importance of stock markets as measured by the ratio of stock market capitalization to GDP. Equity issues and the number of companies listed also converged to U.S. levels.

The second section compares the advantages and disadvantages of relationship oriented bank-based systems with arm's-length market-based systems. It is argued that bank-based systems may be better at some times such as early on when a country's economy is beginning to develop. At other times, such as when the economy is more advanced, market-based systems may be better. The beneficial role of the revelation of information and the financing of innovative industries in market-based systems is stressed.

The third section considers the political economy of financial markets. It is suggested that many vested interests wish to discourage the availability of finance because finance helps encourage competition.

The fourth section investigates the related issue of the relationship between political institutions and markets. Among other things it is argued that central banks are likely to discourage the development of financial markets because they make the achievement of their goals such as the conduct of monetary policy more difficult.

The final section considers the past, present and future of the European financial system. Its main focus is on how Continental Europe fell behind the United States before 1980 and how this can be prevented in the future.

The basic structure and themes of the paper can be summarized as follows.

1. The U.S. market-based system is compared with the Continental European bank-based system.
2. Both systems have advantages and disadvantages but ultimately the U.S. market-based system is superior particularly for advanced economies. Market-based systems lead to more information being revealed and are better at financing innovative projects.
3. The most important determinant of the form of a country's financial system is politics and in particular vested interest groups.
4. Central banks are likely to be antagonistic to financial markets.
5. Continental Europe fell behind the United States in the period after the Second World War and has only caught up since 1980. It is important that Europe does not fall behind again. I will discuss each of these in turn.

*Theme 1:* The United Kingdom is mentioned at the beginning of the paper when it is lumped together with the United States as having a market-based system. Through most of the rest of the paper it is only mentioned in passing. This is a pity since it represents an interesting contrast to the United States and to Continental Europe. It has a longer history of financial markets and a rather different one than the United States. It is only in the last two or three

decades that financial markets have been regulated by the government. During the nineteenth century when the London markets played such an important role in financing industry and governments throughout the world, there was very little explicit regulation. The Bank of England seems to have played an important role in encouraging the development of markets. This is perhaps because when it was originally founded in 1694 its original aim was to raise money to fight the French and markets were an important means of accomplishing this objective. In fact during the eighteenth century the London markets were primarily markets for government debt. The U.K.'s banking system is also very different from that in the United States. It is quite concentrated and has been for some time. It is interesting to note that U.K. banks have not lobbied against the development of markets over the long run.

*Theme 2:* The paper is very careful to be balanced about the advantages and disadvantages of market-based and bank-based systems. However, ultimately it is clear that the authors believe that a market-based system is significantly superior to a bank-based system for modern economies. They stress the information advantages of markets. Stock prices provide signals that allow funds to flow to their most valuable use. Allen and Gale (2000a; Ch. 7) have suggested that offsetting this allocational effect is the fact that more informative prices lead to more price volatility and hence risk. As in Hirshleifer (1971), this risk from more information may lead to a reduction in welfare. As an empirical matter it is not clear whether the allocational role of prices or the price volatility effect dominates. More research is needed on this topic.

*Theme 3:* The issue of what determines the structure of a financial system is an important one. The authors argue that the main determinant is politics and in particular, vested interests. They suggest that finance is viewed with skepticism by incumbent firms. These firms can finance themselves internally and only occasionally need to access external finance. However, potential competitors will be able to use sources of finance to establish themselves and threaten the positions of incumbents. The result of this will be that finance is not liked. This is particularly true of market finance where this effect of financing competitors may be more pronounced because markets are more competitive. Oligopolistic banks with long-term relationships with incumbents will be less willing to finance entrants since this will damage these relationships.

The United Kingdom provides an interesting illustration where politics do not appear to have played an important role in determining the form of the financial system. Incumbent firms and banks do not appear to have been able to lobby successfully for restrictions on markets. While in the United States it can be claimed that banks were dispersed and there was a strong political tradition of restricting their power, this was not the case in the United Kingdom.

*Theme 4:* If politics is of primary importance, what is the role of political institutions in determining the structure of the financial system? The authors argue that central banks play an important role and they are inherently likely to be anti-market. There a number of reasons for this. Similarly to Stigler (1971), it is argued that the central bank is likely to be captured by the industry it regulates. Perhaps more importantly the authors suggest it will be easier to conduct monetary policy and ensure financial stability in a bank-based system.

Again the United Kingdom provides an interesting counterexample to this line of argument. As suggested above the Bank of England has by and large not been anti-market. If anything at least for long periods it seems to have been pro-market. It would be interesting to document examples where central banks in other countries have been explicitly anti-market in their actions.

*Theme 5:* The authors argue that it is important that Continental Europe should not again be allowed to fall behind the US as it did in the period before 1980. They suggest that there will be strong forces that will try to cause a reversal and reduce the importance of markets.

It is an interesting question whether in fact the Continental European countries with their bank-based systems did in fact “fall behind” the US market-based system. During the period after the Second World War until 1980 the Continental European countries outperformed the United States and United Kingdom in most economic dimensions. In particular they had much faster growth rates. It is not clear that they were “behind” at this stage. As argued in Allen and Gale (2000a) a comparison of bank-based and market-based financial systems is complex. Each system has advantages and disadvantages. These must be considered in a long run context. A period of twenty years or so is too short especially given that most of this period consisted of an economic boom. For example, the U.S. economy did well in the 1920’s while its stock market boomed. It did much better, in fact, than bank-based systems. It also did much worse during the 1930’s after the Great Crash of 1929.

The basic perspective of the paper is that markets are superior for advanced economies. The natural transition is from a bank-based system, which is superior at an early stage of development, to a market-based system. However, this may be prevented by political forces and in particular the power of incumbents who have a vested interest to suppress the competition that would result from new firms that would be able to obtain finance from markets. From this perspective the important thing for Europe is to resist the pressures against markets and to continue to move towards a market-based system.

Allen and Gale (2000a; Chapter 2) give an alternative perspective on the development of financial systems. They suggest that asset price bubbles are the result of market failures. When bubbles burst there is a reaction against markets. This leads to regulation that reduces their importance. The regulation is often ineffective and leads to a misallocation of resources. After some time has passed and the inefficiencies associated with inappropriate regulation become clear there is financial liberalization. This allows bubbles to reemerge and the cycle repeats itself. From this perspective the problem is to correctly analyze the nature of the market failure associated with bubbles and to prevent them from arising or at least to minimize their negative effects. Allen and Gale (2000b) suggest that bubbles can arise from the combination of an agency problem and central bank policy that leads to too rapid an expansion in credit. In this view it is the responsibility of the central bank to try to prevent bubbles by avoiding the rapid expansion of credit.

In conclusion, this paper is an important contribution to the debate on how Europe’s financial system should move forward. It contains many interesting ideas and should be widely read.

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## Comment

Martin Hellwig

The paper by Rajan and Zingales addresses many issues, relationship-based finance versus arm's-length finance, market-based finance versus bank-based finance, the financial system of the United States versus continental European financial systems, the transformation of the latter since the 1980's. ... In a sense, it is not one paper, but many papers. There is one paper on corporate finance, one on corporate governance, a third one on politics, legal systems, and corruption, and yet another one on Southern Europe. Coming from the South of Germany, I will not dare to comment on Southern Europe and restrict my comments to corporate finance and governance.

The main points of the paper can be summarized as follows:

- While relationship-based finance and arm's-length finance both have advantages and disadvantages, a system based on arm's-length finance can be regarded as "more advanced". In particular, such a system is more suitable for large economies with large markets.
- Whereas prior to 1914 continental European financial systems had been more advanced than the financial system of the United States, since the Great Depression, the reverse has been true. From the thirties to the eighties, continental European financial systems have been fairly closed, giving a lot of weight to relationship-based finance.
- Since the eighties, continental European financial systems have been moving away from relationship-based, bank-dominated and towards arm's-length, market-based finance. The change was triggered by an intensification of competition in financial systems, in particular, cross-border competition, following the demise of the Bretton Woods exchange rate system with its concomitant controls of international capital flows.

When the authors refer to categories such as relationship-based, bank-dominated finance and arm's-length, market-based finance, they implicitly assume a clear link between finance and governance. However, I am not convinced that the link is always justified. Consider the example of Daimler-Benz in the nineties. Being listed on the New York Stock Exchange provided the company with the means to use its own stock as an acquisition currency. To obtain this facilitation of acquisition finance, the company had to submit to various American regulations. However, the company remains subject to German corporate law. Indeed, its management has been active in the successful lobbying effort to mobilize the German Chancellor against the European Takeover Directive and for a German takeover law which provides management with fairly broad powers of defense against hostile takeovers. In this case, the desire to obtain arm's-length, market-based finance in New York has not been accompanied by a substantial change in governance.

Another example to think about is Switzerland. In terms of the categories developed by Rajan and Zingales, the high degree of openness of the Swiss economy to international trade and international capital flows and the large stock market capitalization might lead us to conclude that Switzerland has an arm's-length, market-based financial system. At the same time, the importance of bank-firm relations in Switzerland suggests that the financial system might rather be relationship-based, bank-dominated. However, either interpretation is questionable once one appreciates that Swiss corporate law provides management with exceptional protection against interference from outside financiers whether they be bank-based or market-based. Voting rights restrictions provide strong anti-takeover protection; moreover, while it is true that Swiss banks can vote their clients' stocks at shareholders'

meetings, the law obliges them to vote in favour of management unless the client in question gives explicit orders to the contrary. In terms of the categories developed by Rajan and Zingales, where should Switzerland be placed?<sup>1</sup>

These examples show that we need to be very careful in discussing relations between corporate finance and corporate governance. Financial structures and financing relations do not necessarily contain information about the underlying governance structures. Assessments of empirical developments must therefore deal with both, finance and governance, each one on its own terms.

### **Is Market Finance “More Advanced” Than Bank Finance?**

In a traditional view of finance, the task of the financial system is to channel funds from the household sector to the corporate sector and to allocate these funds among the available investment opportunities. For households to be willing to provide funds, financial institutions must give them some confidence that they will get their money back and a nice return on top. For this confidence to be justified, there must be some control of corporate managers, which prevents them from embezzling or wasting the financiers' funds.<sup>2</sup> Such control may be provided by banks monitoring companies and adjusting their lending policies or interfering directly through their seats on corporate boards whenever they see something going wrong. Such control may also be provided by “market discipline” in a system with strong shareholder protection, where misbehaving managers are threatened by hostile takeovers. The discussion on bank-based versus market-based financial systems concerns the relative performance of these two mechanisms.

Market-based systems rely on protection of financiers by legal rules. These rules must provide for transparency about corporate doings as well as market occurrences and for fiduciary duty of corporate officers towards financiers as a basis for legal claims that can be effectively pursued even by small shareholders. If protection through legal rules is effective, anonymous outside financiers are willing to put up their funds, accepting even the role of an outside shareholder who does not have a well defined legal claim other than the right to participate in shareholders' meetings. The importance and the success of stock markets and of public corporations in the United States and the United Kingdom bear witness to the potential strength of such a system – and to the benefits derived from its legal infrastructure.<sup>3</sup>

The benefits extend beyond public corporations. Through systemic interdependence, they go all the way down to the venture capital finance of new companies, which works because the mere availability of the stock market as an exit option can be used to reduce conflicts and to limit the expected duration of the venture capitalist's commitment. The overall financial system is therefore characterized by a remarkable degree of openness, providing chances to outsiders without resources or connections, who have nothing more than an idea which looks interesting – like so many other ideas.

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<sup>1</sup> To complete the bewildering picture, the Swiss economy has a dual structure: Part of it is very competitive, efficient, and successful in international markets; part of the Swiss economy is noncompetitive, inefficient and protected from international competition. This dual structure does *not* have a counterpart in different companies having different relations to the financial system.

<sup>2</sup> According to Shleifer and Vishny (1997), this is the very problem of corporate governance. For an alternative view of corporate governance, see Blair (2002).

<sup>3</sup> La Porta et al. (1997, 1998, 1999).

Market-based systems are said to be less susceptible to insider dealings and favouritism. Given the information provided under transparency rules, prices provide objective signals of where investment funds should be allocated. Recent frauds and other scandals in the United States are treated as unfortunate exceptions that provide an impetus for further improvements of the system.

This discussion about market-based versus bank-based financial systems has an important political dimension. We all “know” that the Korean crisis of 1998 was caused by bad corporate governance in a system of insider dealings among large corporations and banks. At least, this was the “Washington consensus” at the time, which inspired the International Monetary Fund’s reform propositions for Korea in the crisis. The only difficulty was that the crisis was too short. The renewed upsurge of the Korean economy followed too quickly for corporate governance in Korea to be as thoroughly reformed as the “Washington consensus” would have considered appropriate. By now of course, Korea is one of the few countries that exert a positive macroeconomic influence in the world economy. As such it provides a small counterweight to the negative influence from countries where in certain sectors the stock market boom of the late nineties has financed enormous overinvestment so that excess capacity stifles development for the foreseeable future.

As far as I can tell, empirical analyses do not yet permit us to make definitive normative judgments about the desirability of arm’s-length, market-based versus relationship-based, bank-dominated finance – and about the role of finance and governance in episodes like the Korean crisis. To be conclusive, such analyses of crises would have to assign proper weights to extraneous macroeconomic developments and to consider the counterfactual test of whether the crisis might have been avoided under an alternative financial system.

I personally share the positive assessment of arm’s-length systems, but for political rather than economic reasons. To the extent that arm’s-length systems provide more opportunities to social outsiders, they help keep societies open and prevent social stratification from becoming cemented. However, this is a political value judgement, which should not be confused with an assessment of economic performance.

Concerning economic performance, I suspect that, in the long run, the choice between relationship-based, bank-dominated and arm’s-length, market-based systems does not make much of a difference. Indeed this was the message that I gathered from an earlier paper by Rajan and Zingales (1998), which showed that the ability of a country’s financial system to provide external finance to industries with high growth potentials was important for the exploitation of those growth potentials, but the channels through which this external finance was provided did not seem to make a difference. At a more superficial level, differences between standards of living in the United States and Japan, the United Kingdom and Germany strike the eye rather less than differences between standards of living in any of these countries and most Latin American countries.

Rajan and Zingales argue that financial systems relying on bank finance are more susceptible to macroeconomic and systemic risk. This view has some justification in the banking crises and economic crises that we have seen in many countries in the early nineties as well as during the Great Depression. In contrast, the effects of the stock market implosion of the past two years have been remarkably mild; relative to the size of the shock, economies in industrialized countries have been surprisingly resilient. However, this resilience is largely due to the fact that consumers, rather than financial institutions, have borne the brunt of the financial disasters. According to the last statement I received from the pension fund where I still have an account from the time I spent in the United States in the seventies, the balance in the account was 60% of what it had been two years ago. If I depended on this fund for my pension, what would I now do?

What do the employees of companies such as Enron do, who were induced to invest their pension savings in shares of the company and now find that they have lost most of their funds?

Can we be so sure about the ability of consumers to absorb shocks of such magnitudes as the financial system imposes on them? Can we be so sure that risk absorption by consumers is preferable to risk absorption by banks, even if the latter has systemic implications? I do not know the answer to these questions.<sup>4</sup> However, we need to answer them before one can with any confidence say that market finance is more “advanced” than bank finance.

### **Is “Good Governance” a Precondition for “Good Finance”?**

The traditional view of finance misses some important phenomena. Taking my cue from the observation that internal finance provides the most important source of corporate funds, I consider it useful to consider the implications of an alternative view.<sup>5</sup> In this view, the task of the financial system is to channel funds from firms with free cash flow to firms with promising investment opportunities or, more precisely, from operations in the corporate sector that generate free cash flow to operations in the corporate sector that need cash. One way to achieve this is to have firms make cash payments to their financiers – dividend or interest payments, stock repurchases, takeover premia – anything which puts funds into the hands of final investors or financial institutions, then to let this cash be reinvested through the financial system.

Another way to channel funds from operations with cash surpluses to operations with cash needs is to have firms retain their earnings and reinvest these funds on their own, perhaps even to cross-subsidize new activities from old activities without actually declaring any earnings. One example of this procedure is provided by Daimler-Benz acquiring MBB and using profits from automobiles to subsidize the Airbus. Another example is provided by Mannesmann using profits from engineering to build up their mobile phone operations.

In this alternative view of finance, the problem of corporate governance is not necessarily what Shleifer and Vishny (1997) and now Rajan and Zingales make it out to be. For suppose that we live in a situation where corporate management effectively has discretion over the retention of earnings. Indeed, to put the argument very starkly, suppose that outside financiers have been completely expropriated. In the categories of Rajan and Zingales, this would correspond to an instance of extremely “bad” corporate governance. Such an experience is likely to close financial markets to anybody who wants to obtain external finance from outside financiers. However, the lack of outside finance would not necessarily starve the corporate sector of funds. After all, by omitting payments to its financiers, the corporate sector is saving funds, which it can reinvest on its own.

From this perspective, an important part of corporate governance concerns the question of what incentives corporate management has to allocate funds efficiently or inefficiently. Jensen (1986) has argued that management is likely to waste “free cash flow”, but the argument rests on the implicit assumption that returns to investment accrue to shareholders, which is at odds with the notion that management has discretion over retentions and can be regarded as a kind of residual claimant for the company’s earnings. If management is a kind of residual claimant, why should they waste the company’s funds? Evidence of inefficient

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<sup>4</sup> The proposition that bank-dominated financial systems provide final investors with greater insulation from risks is a major theme in Allen and Gale (2000).

<sup>5</sup> For an elaboration of this view, see Hellwig (2000).

investment policies has been found in examples like Daimler-Airbus or, more prominently, the American oil industry in the early eighties, but then the Mannesmann example provides evidence to the contrary. At a level of somewhat greater generality, both theoretical and empirical, there are some reasons for believing that investment strategies may be distorted by internal politicking in the corporation, involving in particular an excessive influence of incumbent company divisions.

As yet we do not have a comprehensive understanding of the relative costs and benefits of a system based on internal finance as opposed to a system with payouts and reinvestments through financial institutions, markets or banks. The remarkable performance of American stock markets in financing IT and biotechnology firms has led many to believe in the superiority of a system involving payouts and reinvestments of funds through financial markets. Before we consider the evidence from this recent experience to be conclusive, we should go back a century and consider corporate finance and growth in the Second Industrial Revolution. According to Chandler (1990), the “dynamics of industrial capitalism” in this period were driven by large corporations exploiting economies of scale and scope. In the United States, the revolution was very much manager-driven and financed by retained earnings. Outside financiers did not have much of a say. The one country where financiers did have much of a say, namely the United Kingdom, was unable to participate in these developments because large shareholders interfered with corporate development. Preferring consumption to investment and safety to risk, they were unwilling to commit substantial resources, sometimes even withdrew resources that had previously been committed. Chandler’s account of what he refers to as a system of “personal capitalism” in the United Kingdom suggests that a financial system involving payouts of funds from firms and reinvestments through financial institutions is not always superior.

### **Independence of Corporate Management – A Feature Common to Different Systems**

At this point, it should be clear that the viability of relations between final investors and corporate managers is not the only problem of corporate governance. The traditional approach to finance pays insufficient attention to internal finance and the associated allocation and governance problems. Indeed, in looking at control as a prerequisite for (outside) finance and comparing financial systems in terms of arm’s-length, market-based versus relation-ship-based, bank-dominated finance, the traditional approach to finance is missing the important observation that corporate managers have a tendency to emancipate themselves from control by outside financiers, and that *this observation applies to the United States as well as continental Europe*.

In this context, the following observations are relevant: *Accounting principles* in the United States provide corporate management with more scope to write up assets; this was a major reason why German companies adopted GAAP in the nineties. *Hostile takeovers* in the United States have been made all but impossible through legislation and jurisdiction since 1989. In the nineties, corporate takeovers have involved substantial payments to incumbent managers helping to overcome their resistance. *Management enrichment* is also a feature of stock options programs, which were vastly expanded in the nineties and tend to have little to do with incentive provision for firm specific improvements. The fact that the granting of stock options to management does not have to be deducted as an expense in the company’s accounts speaks for itself.

Rajan and Zingales – rightly – stress the importance of politics, in particular, the political system’s tendency to protect insiders. Their considerations apply to corporate insiders as well as bankers. Moreover they apply to the United States as well as continental Europe. The political economy of anti-takeover legislation and jurisdiction has been extensively discussed by Roe (1994) as well as Bebchuk and his co-authors (1999). More recently, the reluctance of Congress and the President to improve control over corporate accounting can be explained in the same terms. Much of what Rajan and Zingales say about political economy in relationship-based systems can be directly applied to these developments in the United States. Instead of treating them as unfortunate exceptions that provide an impetus for further improvements of the system, we should acknowledge that they reflect fundamental interests of corporate insiders, which are likely to be present in any financial and governance system.

From this perspective, one may even ask whether in the final analysis the importance of the stock market in the United States shouldn’t be seen as a result of managerial self-interest rather than the effectiveness of outside control over corporate managers. Dispersed outside shareholders have few means of interference with incumbent management. Thus, in going to the market, a company replaces banks and outside partners with some pretension to control by an anonymous mass of outsiders with no such pretension. In a sense this provides for an emancipation of corporate management from outside interference. Perhaps therefore, the arms’ length system in the United States, which seems so very different from relationship-based systems in Europe, is just another mechanism by which corporate incumbents maintain their power over corporate resources. To the extent that some shareholder protection is necessary for the system to work, having the appropriate legal rules may be in the collective interest of corporate managers.

From this perspective, one must also question the view that financial institutions, from banks to analysts, monitor and control companies in order to establish the viability of outside finance. In a financial system in which management has discretion over retentions, and cross-subsidization inside the corporate sector is a key mechanism of structural change, services related to mergers and acquisitions provide a source of money for banks. To make sure that incumbent managers have control over the requisite funds for such activities, banks may find it to be in their interest to protect corporate management from outside interference. This has nothing to do with the exertion of control on behalf of outside investors. To the extent that we see financial activity shifting from the provision of finance to the provision of services, we must ask whether the interests of the financial industry aren’t also shifting away from the protection of returns on outside finance and towards the protection of incumbents as prospective M&A clients.

### **What Drove the Revolution in Financial Systems?**

Having said all this about corporate governance, I now turn to the revolution in financial systems. A major issue is whether the revolution in financial systems has anything to do with corporate governance at all. According to Rajan and Zingales, the revolution started in the United States after the Great Depression and in Europe in the 1980’s. I take a different view on this. As far as I can tell, the changes that set off the financial revolution of the past few decades started in the United States between the midseventies and the mideighties. Before this time, regulation in the United States left a fair amount of room for relationship-based finance. An example is given by the relation between AT&T, which used substantial amounts of bond finance, and J.P. Morgan, which served as a kind of “main bank” to AT&T in providing access to the bond market, its position being protected by regulations governing the registration of new bond issues.

The increased intensity of competition in financial markets since the seventies concerns the United States as well as Europe. This development was not only due to international competition following the demise of the Bretton Woods system, but also to institutional innovations in response to dysfunctional regulation, innovations in communication and data processing techniques and innovations in risk management techniques.<sup>6</sup> Indeed, in the United States, the financial revolution was triggered by domestic innovation responding to dysfunctionalities of interest rate regulation at a time of high inflation and high nominal interest rates. The invention of money market funds eroded the earnings base of depository institutions and triggered these institutions' desire for deregulation and their searches for new areas of activity. Interestingly, the ensuing deregulation has reintroduced certain elements of universal banking into the United States.

Some of the innovations that we have seen have involved banks organizing new markets. In particular, derivatives markets are actually organized by banks. Moreover they are in large part inter-institution markets enabling financial institutions to play an active role in the allocation and reallocation of risks. This observation suggests that in talking about banks versus markets, we need to ask who is organizing the markets, who is taking positions in them and who is providing access to them.

The example of AT&T and J.P. Morgan before 1982 shows that these questions are central to understanding the nature of the relation between the parties involved. These questions also concerns the assessment of Rajan and Zingales that Germany was "more advanced" before 1914 than later. In pre-1914 Germany, the stock market was organized by the banks; the banks were also essential for anybody wanting to obtain access to the market. Much of the literature on the "main bank relation" in pre-1914 Germany is actually concerned with this particular role, in which the Berlin "Great Banks" were most prominent.

Who profited from the enhanced competition? Incumbent managers of large corporations are among the main profiteers. Dissolving the hold of J.P. Morgan on AT&T's access to the bond market shifted the terms of the relation in favour of AT&T. Having Daimler be listed on the New York Stock Exchange reduces their dependence on German institutions, not only German banks, but also the other institutions that claim to be representing various "stakeholders" in the company. Defining the company with reference to American and English financial markets also provided a base for adapting corporate remunerations to "international standards", enabling managers to participate in the personal enrichment that flowed from stock option programs and the like.

One of the paradoxes of the nineties is in the simultaneity of corporate managers referring to shareholder value as a primary yardstick for assessing company performance at the same time as they went out of their way to ensure that hostile takeovers would not have chance even if they provided large premia to shareholders. The combination of shareholder value rhetoric and shareholder disenfranchisement could be observed in the United States as well as continental Europe. The resolution of the paradox is perhaps to be found in the observation that shareholder value rhetoric merely served incumbent managers to use shareholder-value-related remunerations for their own personal benefits.

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<sup>6</sup> For a more detailed account, see Hellwig (1996).

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## General Discussion

The Chairman, **Eugenio Domingo Solans** (ECB), invited **Luigi Zingales** to answer to the two discussants. In response to Franklin Allen's discussion, Zingales questioned that the disclosure of information might generate more risk. He wondered whether there is any evidence that the volatility of stock prices tends to be higher in the United States, compared to in countries that disclose less information. He agreed with Allen's point about the importance of wars (and their financing) in developing financial systems. He argued that, consistently with the explanations given in the paper, wars have been so important precisely because the urgency of war makes the power of incumbents less stringent.

Regarding Hellwig's remark that the paper mixed corporate governance and finance issues, Zingales claimed that they should be regarded as one and the same, because good financing takes place only in a good corporate governance system. He agreed that internal financing is important, but he thinks that its role is overrated. According to European data for the last three years, 30% of capital formation was financed through equity issues, showing that external financing is still important. In addition, there is substantial evidence that external financing is extremely important in the first 10 years after an initial public offering (IPO), while as firms become older it practically disappears. According to Zingales, external financing is crucially important to maintain the vitality of an economy and to maintain new entry. In general, financial markets are a source of competition and this explains why incumbents try to do everything to block them. This is true in the United States, as in Europe or anywhere else. However, different environmental conditions may put limits in one direction or another. Policy makers should aim at minimising negative environmental influence against markets.

**Christian de Boissieu** (Université de Paris I, Panthéon-Sorbonne) was concerned about the relevance of the channels of monetary policy, when comparing the relationship-based with the arm's length financing systems. About Allen's discussion on disclosure, de Boissieu said that the relationship between the "optimal degree of disclosure" and the efficiency vs. system stability trade-off is only one aspect of the problem. A complement to this debate has to do with the role of information asymmetries. Some asymmetries clearly must be removed from an efficiency perspective. Others must be kept because of system stability and prudential supervision considerations. For example, many people would accept to live in a world where banks are obliged to report more frequently and give more information to supervisory authorities than to the general market. This borderline between good and bad information asymmetries is very important when talking about optimal disclosure of information. On the first point raised by de Boissieu, Zingales briefly replied that the paper relates mainly to the credit channel, but he thinks the conclusions are also relevant for any other transmission channel of monetary policy.

**Daniele Terlizzese** (Banca d'Italia) raised two points. First, he found it odd to think of central banks as being inherently against markets. It is a widespread perception that national central banks are very important drivers towards European monetary and financial integration. Indeed, the mere construction of European integration is perceived by many as an achievement of central bank "technocrats". Second, he regarded it unlikely that innovative firms or start-ups would provide all the information that markets need. Indeed, venture capital (a relationship-based type of finance) is one of the main mechanism through which these new

firms get capital. Therefore, the role of arm's-length financing seems to be less relevant in this case.

**Zingales** replied that in his opinion monetary integration was a political decision done at the centre, over the bodies of central banks. As a consequence, many central bankers resisted as much as possible to this process. On Terlizzese's second point, Zingales confirmed that venture capital is definitely an example of relationship-based financing in an arm's-length economy. However, it also relies very heavily on markets to liquidate their investment, as mentioned by Hellwig. It could not exist in an economy with only a relationship-based financing system. It's clear that there are combinations of the two and it is difficult to draw a sharp line. Nevertheless, from a theoretical point of view it is useful to have these two benchmarks in mind, to try to understand and quantify their costs and benefits.

**Peter Mooslechner** (Oesterreichische Nationalbank) argued that many arguments put forward by Zingales about relationship banking are true not only for commercial banking but also for investment banking, traditionally considered as part of the market based system. Moreover, he was surprised to know that, according to Zingales' figures, Austria has the biggest companies of all countries covered in terms of staff per firm. 98% of all firms in Austria are actually small-to-medium-size enterprises. This casts some doubt about the reliability of the data used, and therefore on the conclusions reached by the paper. **Zingales** replied that the data for employment are taken from Eurostat. He felt that casting doubts on the reliability of all data without showing the facts is not the proper way to conduct the discussion.

**Günter Franke** (Universität Konstanz) argued that the proposed polar distinction between arm's-length and relationship-based systems is not so clear. Today we witness many attempts to exploit the advantages of both systems. For example, the collateralised debt obligation is a relationship-based form of financing. At the same time portfolios of loans are sold to the market, implying aspects of the arm's-length system. In Franke's opinion there will be a convergence of financial systems in the long run, where aspects of both extreme forms of finance are combined on a middle ground.

**Erik Berglöf** (Stockholm School of Economics) argued against one of the theoretical conclusions of the paper, namely the prediction that incumbents will be strengthened by a crisis. One could defend the exact opposite thesis. For example in Russia or Sweden many incumbents have suffered considerably under renovated economic pressures. In addition, he thought that an interesting question, unanswered by the paper, was how the two systems react to crisis situations. He argued that relationship-based financing is more likely to survive crises. On the other hand, the information content of prices (on which an arm's-length system is based) is least reliable in crisis periods. **Zingales** admitted that also incumbents can get weaker in crises. What is more problematic, however, is that during crises there is a generalised backlash against markets. In a downturn, the political mood becomes anti-market and this makes it easier for incumbents to pass the legislation they want. In the 30's, this backlash was used to strengthen incumbents' positions. Even though for a fortunate coincidence "not pro-incumbent laws" were passed in the United States, the 1930's legislation does have some pro-incumbent elements.

**Philipp Hartmann** (ECB) shared the doubts of some of the previous speakers about the distinction between the relationship based and the arm's-length financial systems. He asked for quantitative measures of arm's-length and relationship-based finance, in order to

distinguish better what type of financial system a specific country or area possesses. Such measures would be particularly useful in the more relevant cases of financial systems combining aspects of both forms of finance, and therefore where the distinction between different financial systems is rather a matter of degree. Since these measures are hardly available, it would perhaps be more useful to resort to the traditional distinction between bank-based and market-based systems where such measures are readily available. In addition, while taking Zingales' point that Southern European legal systems may be less friendly to arm's length finance, not all market infrastructures seem to be inferior in the South of Europe. For example, the highly successful international bond trading system Euro MTS originated from Italy. Zingales agreed that when it comes to applications things are blurrier. Good measures about the two systems do not exist. However, this should not prevent economists from discussing these issues and to make more theoretically appealing classifications. Rather, providing a different theoretical classification should stimulate central banks to get the data to match this classification and explore its implications. Regarding the second remark, he clarified that when the authors refer to "market infrastructures" in the paper, they only mean the general legal environment and not trading platforms.

**Robert Raymond** (European Monetary Institute) argued that in a relationship based system the purpose of the two negotiators (the bank and the borrower) is to escape from the law of the market rate. They negotiate an agreed interest rate with possible revision clauses, but this rate may not coincide with the market rates. The problem, from a central banker perspective, is to know how interest rate risks are allocated. There are two possibilities. Either the bank does not hedge this risk (classical approach in retail banking) and a problem of financial stability arises. Or the bank hedges the risk (usually the case in investment banking) through asset-liability management. Derivatives and financial markets are instrumental to the viability of this second option. He further asked the speaker how relationship-based credit should be valued on the books of banks. Zingales said that the question of how to value relationship based banking on the book is very difficult. This shows one problem of making the two systems compatible. Many of the questions so far raised the point that the two systems tend to be somehow mixed. This is definitely the case in Zingales' opinion as well.

**Jean Dermine** (INSEAD) picked up Allen's and Hellwig's remarks on the role of bubbles in financial markets, and the argument that they cause too much volatility and raise issues of risk sharing. Another problem in markets, in Dermine's opinion, is represented by regular liquidity squeezes in bond market and especially in commercial paper markets. In these circumstances, very large corporations rely on banks to get liquidity. This confirms that banks provide indispensable liquidity services.

**Luigi Spaventa** (CONSOB) questioned the reliability of the La Porta et al. (1997) measures. He argued that these measures are either outdated or irrelevant. They are outdated because they neglect important innovations that have been adopted in some countries in recent years (the index of legal protection for Italy, for example, is 5 out of 6 in the La Porta et al. measures, but is now 5, after the 1998 reform). They are of little relevance, because they mostly refer to legal remedies allowing litigation: litigation is a residual (and often ineffective) means of protection, insofar as it does not prevent corporate failures, but is implemented only after they have occurred. Another example regards the classification of countries according to how many of some ninety specific accounting items are included in

companies' financial reporting. This measure follows the approach of the United States GAAP (Generally accepted accounting principles), which attempt to establish detailed prescriptions for all possible cases. Recent corporate events in the United States, however, have shown that this approach, unable to keep pace with financial innovations, lends itself to elusion by means of creative accounting. Actually the United States is now turning towards the principle based approach already followed in the United Kingdom and other European countries, which is typical of the IAS (International Accounting Standards) that will be adopted by all European listed companies as from 2005.

**Zingales** shared Spaventa's view that the La Porta et al. measures may be out of date. However, measures such as the time it takes to enforce the payment of a bounced check, or the time it takes for a bank to foreclose on collateral, in case mortgage obligations are not fulfilled, should be among the most reliable measures. According to these measures the differences between countries are enormous and it is hard to think that they have changed in recent years. Although some of these measures are biased in favour of the United States, what is remarkable is that results are consistent across the board. For example, another measure estimating the value of control (constructed by Zingales and Dyck) shows that control is still very valuable in Italy and not so much in other countries. The reason is that insiders are more powerful in Italy compared to other countries. Of course, the Enron case in the United States is terrible, but people get prosecuted and perhaps are sent to jail. It is hard to claim that the same is happening in Italy.

## **European Financial Integration and Equity Returns: A Theory-based Assessment**

Kpate Adjaouté and Jean-Pierre Danthine\*

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## 1. Introduction

Several structural changes of first-order importance for financial markets in the euro-area have marked the last decade. The *single market* has seen an unprecedented movement of economic convergence across the European continent culminating with the advent of the euro. A broad set of measures promoting *financial integration* has been, and continues to be, implemented with the view of eliminating the last objective sources of market segmentation. All these have taken place in a context of increasing *globalization*, that is, the removal of worldwide barriers to the free mobility of goods and capital. These structural changes and their effects, observed or anticipated, on financial markets, have been abundantly documented. The facts have been recently summarized in reports issued by the ECB (ECB 2001a,b) and broad assessments of the evolution of European financial markets have been offered by Adam et al. (2002) and Galati and Tsatsaronis (2001) among others. Earlier evaluations were provided by Adjaouté et al. (2000) and Danthine et al. (2001). We build on these studies without attempting to replicate their broad range. Our main focus is equity markets whose evolution we try to understand in light of economic and financial theory. Because a full appreciation of equity returns requires a view on the changes in the risk free rates of return, we also describe and evaluate the changes that have been taking place in the government bond markets of the euro area.

Our starting point is the postulate that the above mentioned changes have had a significant impact on the *fundamentals* being priced in European financial markets and on the characteristics of the *pricing mechanism*. Our goal is to tally the progress made thus far on both fronts – to what extent have the fundamentals been modified? Are we converging toward a single pricing structure, the characteristics of a truly integrated market? –, to evaluate the role of the different structural changes for the observed developments – we mostly associate the single market and EMU with changes in the fundamentals and financial integration with convergence in pricing –, and to identify the role and the importance of further efforts toward financial integration – we argue that the remaining measures of financial integration have to be assessed at the light of our understanding of the microstructure of equity and bond markets. Special attention is given to the criterion of universal access: are European securities increasingly accessible to all Europeans at the same price under the same terms? Indeed, the developments mentioned above imply new investment and risk sharing opportunities. Their impact on the structure and performance of European financial markets and the benefits obtained by Europeans depend on the extent to which these new arbitrage opportunities are seized by market participants.

Assessing the current status of European financial markets requires confronting the combined effects of the complete set of structural changes mentioned above within the global context. The significance of each of these changes is such that the temptation exists – and is not always resisted – of crediting it for the observed changes. The advent of the euro is a case in point. While the euro provides an evident motivation to our inquiry, we resist the temptation to focus exclusively on this event or to attribute the entire credit of observed changes to monetary unification. Because financial markets are by essence about money, a major structural shift such as the advent of the euro may, at first sight, be expected to produce its most potent effects in the area of finance. But if the ultimate step is the creation in Europe of a completely unified financial market, the disappearance of national currencies, while a crucial step forward, is clearly not the endpoint. Moreover, even what can be considered as a watershed one-off event, the advent of the single currency, has been preceded by a period of several years of convergence.

There are other pitfalls to be avoided. One further cause for caution is that the key indicators of financial market performance are known to be fluctuating at high frequencies. Distinguishing trend breaks from short run fluctuations in order to assess the impact of a one-off structural change is arduous. This is all the more so in the case of the euro whose advent has almost coincided with the bursting of a major bubble in equity markets. Current market conditions are likely to obscure the effect of the euro as well as they may generate spurious links with the single currency. Furthermore, financial markets are guided by anticipations and a structural break may be hard to identify because of effects taking place in anticipation of the break. At the opposite, accompanying measures of integration have come slowly and progressively and some adjustments are still incomplete. Finally it is worth underlining that in this context the post-euro period constitutes by all possible measures a very short sample of observations. For all these reasons, caution has to be exercised before drawing conclusions and recourse to theoretical guidance is needed. Empirical analysis alone is likely to be unconvincing.

The paper proceeds as follows. Section 2 proposes a stylized interpretation of the institutional changes under review. Section 3 is devoted to understanding public bond markets while Section 4 focuses on equity markets and excess returns. Both of these sections are similarly structured: we first use theory to discuss the possible impact of European integration on the fundamentals of the assets under study (Subsections 3.1 and 4.1), and on their pricing mechanism (Subsections 3.2 and 4.2). We then collect relevant evidence on revealing quantity adjustments, that is changes in the supply and demand of both assets (Subsections 3.3 and 4.3), before providing a more complete assessment of the evidence obtained on risk free returns and equity returns. Section 5 draws some elements of a balance sheet for the various actors on these markets – Treasurers, firms and investor-consumers – and look at some of the challenges ahead.

## **2. A Stylized Interpretation of the Institutional Changes**

The single market, the euro and the accompanying measures of financial integration can be viewed as a series of steps in the transition from completely segmented national markets toward a single European financial market. Of course, this is a very stylized perspective and neither extreme status is appropriate to describe the current state of financial markets in Europe. In some sense, the extent to which the current situation can be described as one of integration (and whether it matters) is the very subject of our inquiry. It is also true that European financial markets of the late 1980s could not be viewed as completely segmented from one another. Most restrictions to the free movement of capital flows had been lifted by the end of the eighties and the removal of further obstacles to international investing has been on the agenda and under implementation for many years. Yet, besides currency risks, important obstacles on the route to financial integration remained that could be seen as having a determining influence on investors' behavior and, as a result, on market performance.

Those who rather see the glass as being half empty point to the obstacles to integration documented for instance by Adjaouté et al. (2000), and Bolkestein (2002). Padoa-Schioppa (1999) for example observed that “... the euro area (still split in 11 countries) has 18 large-value systems, 23 securities settlement systems and 13 retail payments systems. The United States has 2 large payments systems, 3 securities settlement systems and 3 retail payments systems.” One may add that Europe has 15 stock exchanges, more than 20 derivatives markets and no national center for bond trading. Cross-border payments and securities settlement within Europe are substantially more expensive and complicated than domestic

ones. Part of the problem is that while the processing of domestic trades has become highly standardized, cross-border processing is still structured and organized in a complicated and often inefficient way in almost all European countries. Settlement risk is increased by the lack of Delivery vs. Payment (DVP) mechanisms and the longer time between trade execution and completion, while custody risk is increased because of the number of intermediaries and jurisdictions involved.

Adjaouté et al. (2000) estimate that cross-border transactions cost ten to twenty times more than domestic ones: from \$1 to \$5 for domestic transactions as opposed to \$10 to \$50 for cross-border trades between European markets. A 1999 study by the European Central Bank similarly shows that fees charged to customers for domestic credit transfer rarely exceed €0.10 to 0.15, while for cross-border transactions inside the euro-area these fees vary between €3.5 to 26 for small amounts and between €31 and 400 for higher amounts. "In addition to these fees, banks in some countries add extra charges (e.g. balance of payments reporting, currency conversion, SWIFT, postage and other communication charges), which may be substantial compared with basic fees" (European Central Bank, 1999). The ECB study also shows that cross-border payments need 4.8 working days on average to reach their destination, with substantial differences between countries, and that 15% of the transactions needed more than a week to be executed. By contrast, domestic payments arrive usually in one to three days.

Taxation can also be a significant barrier to cross-border investment within the euro area. One example among many is the fact that, while taxes paid to foreign governments can usually be credited against domestic tax liabilities, the offset is not always perfect; in addition it may be costly and time consuming to actually obtain the tax credit. Another example concerns the legal status of some mutual funds that are not covered by double taxation agreements between European countries.

These and several other considerations, varying accounting and reporting standards in particular, imply that the euro area cannot be viewed as a homogenous investment area comparable to the United States. These problems are well recognized and substantial efforts to foster harmonization (i.e. the EU's Investment Services Directive and the Financial Services Action Plan of the European Commission) are under way. Concerning payment systems in general, EMU has certainly brought some progress; the establishment of TARGET and EURO1, the settlement systems for large transactions of the European System of Central Banks and the European Banking Association, respectively, and the implementation (in August 1999) of the EU Directive 97/5/EC of January 1997 on cross-border credit transfers are some of the most visible improvements in the wake of EMU. More generally, Bolkestein (2002) clearly indicates that full financial integration is receiving the highest priority from the European Commission as it is viewed as an integral building-block in the establishment of the single market. The slow progress is not a coincidence or a result of negligence, however. It is largely a reflection of the sensitive political dimension of the issues at stake in a context where remaining obstacles serve to protect domestic institutions and markets from outside competition.

At the other end of the spectrum, tenants of the hypothesis that the glass is half-full tend to focus on the watershed event constituted by the advent of the single currency. This is after all a true regime change and its effects may be far reaching. De Santis, Gérard and Hillion (1999) disagree, arguing that the disappearance of currency risk would have only a limited impact on portfolio investors. They base their view on the observation that while EMU countries' currency risk was a significant risk factor for portfolio investors in the 1990s and while investors were indeed compensated for their exposure to this source of risk, its importance

has declined in the course of the decade. And non-EMU currency risk (in particular associated with the dollar) was quantitatively much larger. But their position must be qualified for a number of reasons.

First the situation of institutional investors is quite specific. Currency matching rules, that is, explicit restrictions on the ability of insurance and pension funds to invest in foreign currencies meant that the most important actors of European financial markets were constrained to home-biased portfolios for regulatory reasons. The automatic lifting of such restrictions, without transition on Jan. 1, 1999, is convincing ammunition for the hypothesis that the euro defines a structural break for European financial markets. We acknowledge, however, that pre-euro facts were not entirely supportive of this view as institutional investors did not appear to test their regulatory limits to foreign portfolio holdings (see Table 1).

Furthermore, the disappearance of euro-area currency risk has to be placed in the context of the well-known home bias, the tendency of investors everywhere to invest in local securities rather than taking full advantage of the possibilities for geographical diversification beyond their own residency area. While there is no agreed upon resolution to the home bias puzzle (see Lewis, 1999, for an overview), several plausible hypotheses have implications for the role of a structural change such as the single currency. Thus, the lack of international diversification may be attributed to informational (Brennan and Cao, 1997) and even psychological (Huberman, 2001) obstacles. This implies that weight should be placed on a more settled contribution of the euro: first, at the level of transparency (the unit of account function of the single currency), and the recent setting-up of a wide range of euro-wide stock indices is relevant here, second, in fostering a sense of belonging (Europe is home) that could strengthen the mechanical effect of the elimination of currency risks on the perceived barriers to trading financial assets across the euro-area.<sup>1</sup>

In sum, it cannot be denied that the advent of the single currency and the accompanying measures of integration do constitute a lowering of the effective barriers to free investing across the euro area. Whether these measures might be decisive in delivering a truly unified financial market with the attending benefits is an empirical question to which we now turn. We find it useful to contrast the two extreme cases of full segmentation and complete integration and then to ask whether the “shade” changes observed in Europe might be understood in the light of the “color” changes that we describe.

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<sup>1</sup> The very existence of the home bias might be viewed as an indication of fragmentation. In light of evidence that the home bias is also prevalent within the US – home bias at home – it is not clear, however, that too much weight should be placed on this single indicator as a measure of financial integration. See Coval and Moskowitz (1999).

Table 1: Size, cross-border activity, and regulation of European pension funds and life insurers

## Panel A: Pension Funds

Country	Assets in bn ECU (1993)	Assets as % of GDP (1993)	Foreign assets as % of total (1994)	Currency matching rule
Austria	NA	NA	12	50%
Belgium	7	3.4	37	No
Finland	NA	NA	NA	80%
France	41	3.4	4	No
Germany	106	5.8	6	80%
Ireland	18	40.1	39	NA
Italy	12	1.2	5	33.3%
Luxembourg	NA	NA	NA	NA
Netherlands	261	88.5	23	No
Portugal	NA	NA	6	No
Spain	10	2.2	3	No
<b>Memo: United Kingdom</b>	717	79.4	27	No

## Panel B: Life Insurance

Country	Assets in bn ECU (1995)	Assets as % of GDP (1995)	Foreign assets as % of total (1994)	Currency matching rule
Austria	5	1.7	NA	80%
Belgium	6	2.9	NA	80%
Finland	6	6.3	NA	80%
France	317	30.0	0	No
Germany	379	20.5	NA	80%
Ireland	NA	NA	NA	NA
Italy	31	3.7	10	80%
Luxembourg	5	37.6	NA	NA
Netherlands	138	45.6	6	80%
Portugal	3	3.9	NA	80%
Spain	18	4.2	NA	80%
<b>Memo: United Kingdom</b>	565	67.1	15	No

Sources: As reported in Danthine et al. (2001). NA = not available

### 3. A Single Risk Free Rate? Understanding Government Bond Markets

#### 3.1 Fundamentals

Standard asset pricing views the return on equities as the sum of the return on the risk-free asset and of an equity risk premium. We start with this distinction and examine separately the two components of stock returns. To situate quantitatively the two terms of our distinction, let us note that the historical average real return on government bonds has been around 1 to 4% while, with the exception of Italy, the real return on equities has been approximately 7-8% (Table 2). The volatility of equity returns is typically 2 to 3 times as high as the volatility of bond returns.

The risk-free asset is defined as a security delivering a safe payoff, i.e., a payoff that is independent of the state of nature prevailing at the maturity of the contract. The risk-free asset is exempt of credit risk: this is why it is typically associated with a security issued by a

Table 2: Historical returns and volatilities: equity and bonds

Country	Sample period	Average returns on equities	Volatility of returns on equities	Average returns on government bonds	Volatility of returns on government bonds*
France	1973.2 1996.3	7.207	22.877	4.176	8.158
Germany	1978.4 1996.3	8.135	20.326	4.237	7.434
Italy	1971.2 1995.3	0.514	27.244	0.678	9.493
United Kingdom	1919-1994	7.314	22.675	1.516	8.812
United States	1891-1995	6.697	18.634	2.127	6.499

Source: Campbell (1999).

\* Volatility of excess return on government bonds over bills.

government. It is exempt from inflation risk: this is why one usually thinks of it in terms of an inflation indexed bond. In addition, it should be exempt from reinvestment risk, which implies that the maturity of the security should be defined in accordance with the horizon of the investor and that it should be traded in liquid markets.

Most euro-area countries do not offer their residents access to truly risk-free securities at all relevant horizons. Indeed, with the exception of the indexed securities offered by the French Treasury, no euro-area government proposes inflation-indexed bonds. It is also the case that in several countries of the euro-area government securities are not considered exempt from credit risk. In an international context with different currencies, exchange rate risk implies that the fundamentals underlying government bonds are not identical for the residents of different countries. This risk may be mitigated but not eliminated in a theoretical situation where flexible exchange rates would be exclusively driven by inflation differentials. Arbitrages are also possible via derivative instruments.

Despite these qualifications, short term government instruments are generally considered as the closest approximation of the risk-free asset. If we take the view that the typical equity investor is in the market for the medium or long run, however, the horizon considerations spelled out above suggest to rather focus on government bonds, a viewpoint we adopt here. If one abstracts from credit risk – we will be more careful later in this section – one may consider that, in the euro-area, the fundamental risk of government assets is almost entirely due to inflation risk. In other words, changes in monetary policies leading to changes in expected and realized inflation rates are the cause of discrepancies between the return on government bonds and the return on a truly risk free security.

From this perspective, EMU is indeed the major event it has been made into. The disappearance of currency risk has eliminated the major discrepancy between bonds issued by governments with identical credit rating in the euro-area. And with closely similar inflation rates resulting from a single monetary policy, the fundamentals of the participating countries government bonds appear to have fully converged. The same approximate risk-free asset is thus available to all euro-area residents. The low inflation level targeted and delivered by the ECB moreover implies that the approximation is fairly close. Finally, the Maastricht Treaty and attending restrictions on fiscal policies signal the intention to push the

convergence even further, at the level of credit risk. Thus in terms of the fundamentals of government securities and the availability of an unambiguously defined risk-free asset, the euro is indeed a watershed.

### ***3.2 Pricing***

Full financial integration implies that the law of one price applies to financial assets available across the euro-area. This means that the same discount factor is used to value uncertain but identical future cash flows (whatever their nature). Assets delivering identical cash flows fetch the same price independently of the country of origin or of any other specific characteristics. In technical jargon, the pricing kernel is one and the same across the area. In the case at hand, this means that in a truly integrated financial market, the definition of the risk-free asset is unambiguous and the pricing of this asset is single-valued. By contrast, when markets are segmented, the definition of the risk free asset is country-specific since it is not denominated in the same currency and the prices and returns of the corresponding securities are largely disconnected. The demand and supply of savings are matched country by country and the risk appetite largely depends on local circumstances. Since pricing differences cannot be arbitrated away – there is no way to trade on the basis of relative capital abundance and relative willingness to take risk –, local capital market conditions determine the interest rates on the national risk-free asset.

This analysis leads to the prediction that financial integration should be characterized by a convergence of interest rate levels as well as an increasing similarity in the time-series properties of the returns on the closest proxy to the risk-free asset. While even under segmentation one does not necessarily expect interest rate correlations to be zero because contagion effects cannot be excluded – an Enron could have effects on the appraisal of the risk of financial assets in the neighboring country even in the absence of capital mobility –, one clearly anticipates correlations between risk-free bonds to increase with integration. One further expects that the return on the single risk free asset of a larger economic area will be less volatile than the risk-free rates of the constituent elements of this large entity under segmentation. This is because the large area risk-free rate should be less sensitive to idiosyncratic local market conditions than under segmentation. In other words, the specific local conditions should offset one another via the usual diversification mechanism. Finally, the same credit risk government bonds in the euro area now correspond to the same fundamentals. If the law of one price applies, they should be priced identically!

### ***3.3 Quantity Adjustments***

The pricing changes discussed in the previous section do not come about out from nowhere. They are the results of arbitrages taking place across an integrating economic area. These arbitrages act as signals for the changes at work. It is thus interesting to check for quantity adjustments and portfolio changes that are revealing of the transformation of the euro-area government bond markets into a single market for public debt. Of course, not all, sometimes not even the major, changes in investors or borrowers behavior are necessarily due to the integration process. We retain the following relevant evidence.

The conversion of the outstanding government bonds and the denomination of all new issues in the new currency is a major contribution of the euro. It was widely viewed as likely to increase their collective appeal to investors and generate a substantial increase in volume.

Galati and Tsatsaronis (2001) substantiate this prediction. By some measure, the size of the EMU area government bond market is now almost on par with the US treasury market.

In contrast with this statement, the 2001 ECB study on euro bond market reported that EMU sovereign outstanding bond issues represented 50% of the total outstanding bond issues (€6,145 billions) in 2000, down from 54% at the start of Stage Three of EMU. This is the result of one factor not related to financial integration: the improvement in budgetary balances and lower or even negative net borrowing requirements over the period has led many EMU governments to carry out buy-back programmes or bond exchanges. Indeed, the overall budget deficit for the euro area decreased from 2.1% of GDP in 1998 to 1.2% of GDP in 1999, while the whole euro area registered a small surplus of 0.3% of GDP in 2000. As a result, issues by central governments have dropped from €600 billion in 1999 to €476 billion in 2000. Net bonds issuance by euro area central governments are displayed in Table 3, corroborating the decline in issuance activity between 1999 and 2000. It is worth mentioning that exceptional income from the sale of UMTS licences has contributed, at least partly, to the decline in sovereign issuance activity. On the corporate side, the funding of these UMTS licences together with the requirements induced by large mergers and acquisitions has led to an increased importance of the corporate bond sector.

With the disappearance of currency risk, the focus of investors has turned on the characteristics of bond issues rather than on the nationality of issuers. This has led euro area governments, now competing for the same pool of funding, to adopt new issuance strategies and techniques. Favero et al. (2000) also reports that sovereign issuers increasingly compete to obtain the services of primary dealers whose role is crucial in promoting national bonds abroad. This has forced them to provide concessions that increase the cost of debt-servicing. The consequences of these features are as expected from a unified financial area: government bond issues are increasingly held by non-residents. For example, in 2000, 33% of the bond issues by the French government were held by non-residents, up from 16% in 1997, and the corresponding figures were 53% and 29% respectively, for Belgium (Galati and Tsatsaronis, 2001).

Finally, as expected, liquidity as measured by monthly volume in the secondary market has increased steadily in the major euro countries (France, Germany, and Netherlands). We will argue below that in the new context microstructure considerations take center stage. In this

Table 3: Net bond issuance by euro area central governments

Country	1999	2000
Italy	67.0	28.7
Germany	48.0	34.0
France	35.3	22.7
Spain	23.6	19.4
Belgium	13.5	9.1
Netherlands	5.5	5.1
Austria	12.5	10.6
Portugal	6.8	3.3
Finland	-0.5	-1.6
Ireland	-0.3	-1.6
Luxembourg	0.0	0.0
Total	211.4	129.7

Source: The Euro Bond Market, ECB, July 2001.

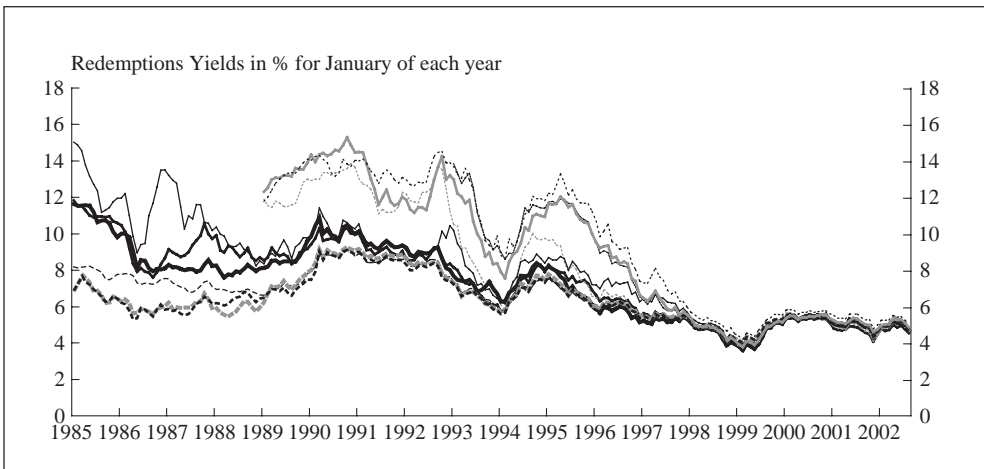
regard, the emergence of the so-called EuroMTS, an electronic platform to trade bond issues in excess of €5 billions, is significant. It has triggered smaller issuers such as the Netherlands, Belgium and Portugal to opt for syndicated placements as opposed to traditional auctions. Banks in the syndicate have been successful so far in distributing the issues to a broader investor base in the euro-area, although in some cases at a cost as discussed above.

### 3.4 Evidence

Figure 1 traces the evolution of redemption yields from Datastream on euro-area government bond yields from January 1985 to August 2002. The benchmark government bond price index is also calculated using the same bonds. The downward trend observed in the later years is undoubtedly due to specific macroeconomic conditions. More remarkable in light of our discussion of Section 3.2 and duly emphasized by observers is the evident convergence of government bond yields of the euro area. At the scale appropriate to represent the yields observed in the early 1990s, the plot is almost one of a single curve from 1999 on.

Is this convergence in levels confirmed by the evolution of correlations? To emphasize the time evolution and take due account of the short post-euro sample, we report in Figure 2 the time-series of cross-sectional dispersions of the government bond yields. The yield dispersion is calculated as the cross-sectional standard deviation of the redemption yields observed at a given point in time for the countries in the sample. It is intended to give a measure of the closeness of the yields. The lower the dispersion, the higher their correlation should be and conversely so when the dispersion is high. The change is striking as well. Dispersions have fallen by more than 90% from an average of 2.28 in the pre-euro period to an average of 0.16 since the euro. This indicates that from January 1999 onward the various government bond yields in the euro-area have exhibited a closely similar behavior as theoretically expected.

Figure 1: Convergence of EMU government bond redemption yields



Source: Datastream. The redemption yield used for each country represents the average yield on benchmark bonds within maturity sectors. That is, within each maturity sector, sample bonds are selected based on their tradability and interest to international investors and a weighted average redemption yield is computed on all selected bonds across the maturity spectrum.

Figure 2: Redemption yield dispersion of EMU government bonds for January of each year



Source: Datastream – See Figure 1 for definition.

A less well known result is displayed in Table 4: in conformity with theory, interest rates in Europe have become less volatile. The change in volatility is valid and statistically significant for each and every country in our sample, a striking result suggesting indeed that the euro-area bond markets respond to a smaller extent to idiosyncratic local circumstances and that inter-market arbitrages tend to distribute across the whole area, and thus stabilize, the effects of sudden local changes in supply and demand conditions. The fact that our result holds as well for Germany and other traditionally low interest rate countries should dispel the suspicion that the smaller volatility in the post convergence period is a pure scale effect resulting mechanically from the lower general yield level.

At first sight, this range of evidence provides spectacular support to the notion that the euro-area bond markets are highly integrated as concluded by Adam et al. (2002).

Table 4: Volatility of government bond redemption yields

	Pre-euro	Post-euro	Var. ratio stat	P-values
AT	1.211	0.481	6.780	0
FR	1.797	0.474	2.994	0
FN	3.094	0.517	1.206	0
BG	1.809	0.535	3.759	0
NL	1.241	0.414	4.786	0
IR	2.224	0.456	1.807	0
BD	1.162	0.409	5.318	0
PT	2.842	0.507	1.366	0
ES	3.117	0.492	1.070	0
IT	2.944	0.433	0.929	0

The pre-euro period goes from January 1985 to December 1998, and the post-euro period from January 1999 to August 2002.

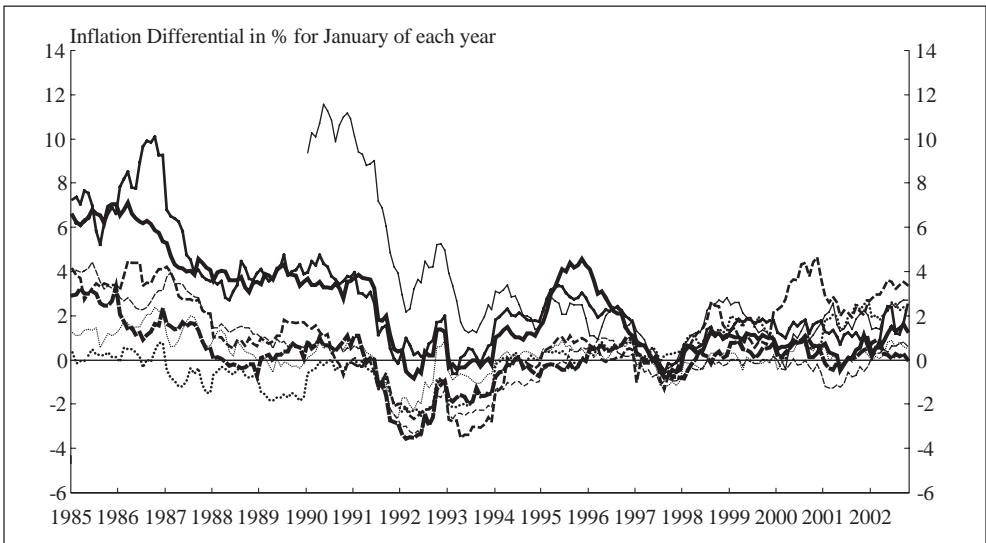
**On cross sectional dispersions**

We will be using repeatedly the concept of dispersions to support the results obtained with simple correlations. Cross sectional dispersions are meant to be the cross-sectional counterpart to correlations and to provide the same underlying information. Our problem stems from the highly changing nature of the relationships we are focusing on and on the limited size of the post-euro sample of observations. If returns are highly correlated, then we expect that more often than not they will move together on the up side or on the down side. If they do, the instantaneous cross-sectional variance of these returns will be low. Conversely, lower correlations mean that returns often diverge, a fact translating into a high level of dispersion. Dispersions and correlations are thus inversely related. While correlations require a minimum sample length to be estimated with some precision, no such requirement is needed for dispersions, although the measure will be more imprecise if the number of returns entering in the variance measure is too small. Cross-sectional dispersions were first used in the context of equity returns by Solnik and Roulet (2000).

Segmentation is apparently a thing of the past and from that perspective the disappearance of currency risk was indeed a major event!

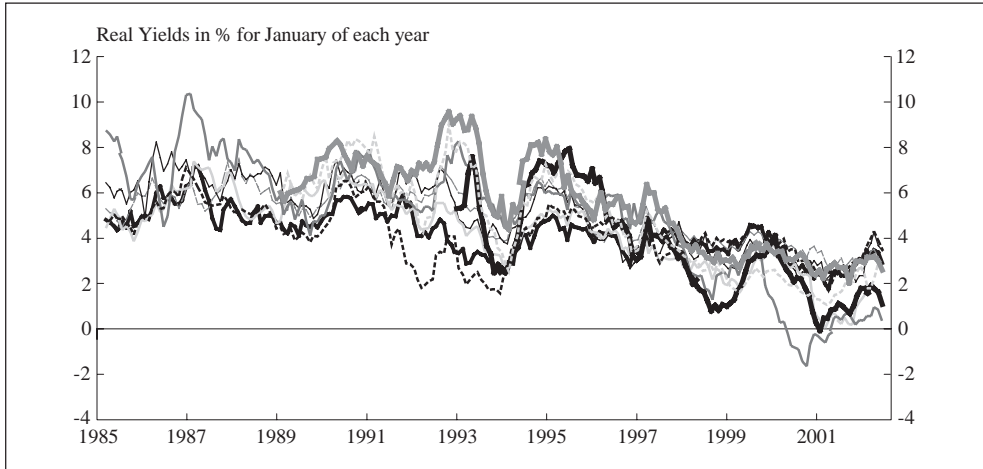
We now introduce two qualifications to this upbeat statement. First, we address more explicitly the issue of inflation. Indeed while the discussion has been in terms of nominal returns in an admittedly low inflation environment, it remains that the object of interest is the real risk-free rate, that is, the nominal rate net of expected inflation. In the absence of inflation indexed bonds for the countries of interest and short of attempting to estimate inflationary expectations, we can check whether the picture drawn for nominal yields is corroborated when using ex-post real yields on government bonds. Figure 3 reports the evolution of inflation differentials relative to Germany over the period of interest. There is impressive

Figure 3: Inflation differentials vis-à-vis Germany



Source: Datastream.

Figure 4: Convergence of EMU government real bond yields

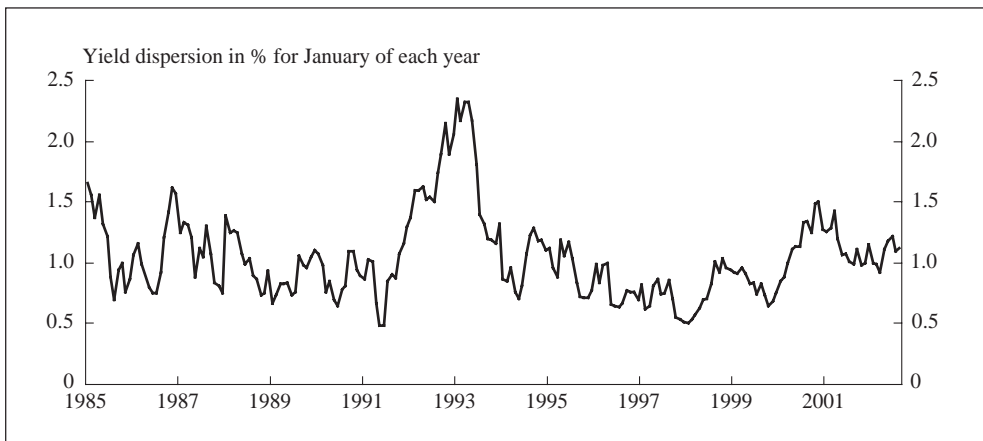


Source: Datastream.

convergence almost all the way to January 1999 but the years 2000 and 2001 have witnessed a less uniform evolution. One may suspect that a portion at least of the convergence of nominal yields in the early part of the period reflects an adaptation by the market to this reality. Indeed Figures 4 and 5 suggest this summarizes the bulk of the reality underlying the observed convergence of nominal yields.

As Figure 4 reveals, the downward trend evidenced in nominal yields is also present in real yields. However, unlike nominal yields, which lie within a tight band since the completion of the formal convergence process and the introduction of the euro, the real yields remain significantly dispersed even in recent months. Figure 5 displays an interesting feature of the real yield dispersion: no obvious time pattern is discernible contrary to what was the case for

Figure 5: Monthly real yield dispersion



Source: Datastream.

the dispersion of nominal yields (Figure 2). After a spike in the early nineties reflecting the German unification, the dispersion of real yields over the recent past has remained comparable to what it was in the eighties and somewhat higher than the levels reached at the end of the nineties.

Table 5 summarizes the volatilities of the real yields, pre and post euro, for each of the countries under study. On this score the result obtained with nominal yields is confirmed: the post euro period is characterized by a lower volatility of real yields, although the evidence is somewhat less strong than with nominal yields in the case of the Netherlands and Ireland. In sum, the evidence on real yields suggests most of the convergence of nominal yields is in fact attributable to the convergence of inflation rates. As far as ex-post real risk-free rates are concerned, the convergence of nominal rates has exceeded the convergence of national inflation rates, thus leading to an increase in dispersion in the most recent period. It would be interesting to see if this observation can be confirmed for ex-ante real rates. In the meantime, the clearest sign of financial integration may well be the decreased volatility of both nominal and real rates.

Table 5: Volatility of real yields

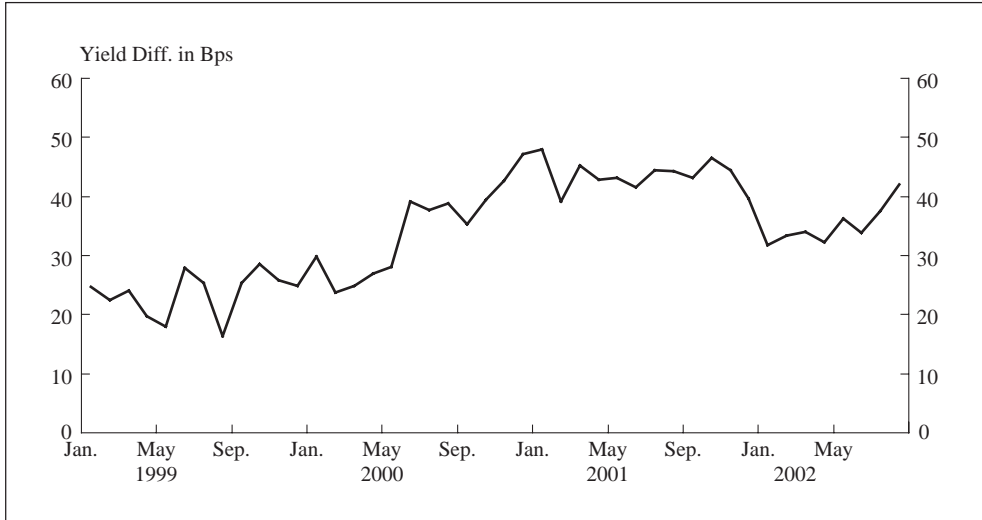
	Pre-euro	Post-euro
AT	0.911	0.741
FR	0.952	0.492
BG	1.316	0.569
NL	1.229	1.103
IR	1.669	1.445
BD	1.217	0.735
PT	2.025	1.029
ES	1.689	0.478
IT	1.599	0.400

Source: Datastream.

Our second qualification comes from the observation that the government bond markets of the euro-area still appear segmented in the sense that the pricing of the same, in some cases identical, credit risk government instruments has not fully converged. Pricing evidence indicates that the various public bonds have become very close substitutes as the convergence of the fundamentals easily rationalizes but full identification has not occurred. Indeed, Figure 6 illustrates the fact that, for some countries – here Italy –, spreads over German yields have increased since the start of the euro, an evolution which seems in flagrant contradiction with the convergence to a single price. To dispel the view that this might be related to credit risk, Figure 7 takes a closer look at the yields on French and Dutch government bonds. These instruments have the same AAA credit ratings. Variations in credit risk or in credit risk pricing can hardly explain the diverging behavior of the yields on these two intrinsically identical instruments. The law of one price does not seem to apply! Yet other evidence is provided by looking at holding period returns on ten-year public bonds, which still exhibit a significant level of dispersion (Figure 8). The pre-euro rhetoric comparing the size of the euro-government bond markets with those of the US assumed that there would be one government bond market for the euro. This assumption is not warranted and it has to be considered as a failure of integration.

The missing piece in the puzzle is to be found at the levels of liquidity and micro-structure considerations, precisely the levels at which measures of financial integration should be kicking in and which in these markets now take center stage. On this score, Danthine et al.

Figure 6: Post-1999 yield differential: Italy versus Germany

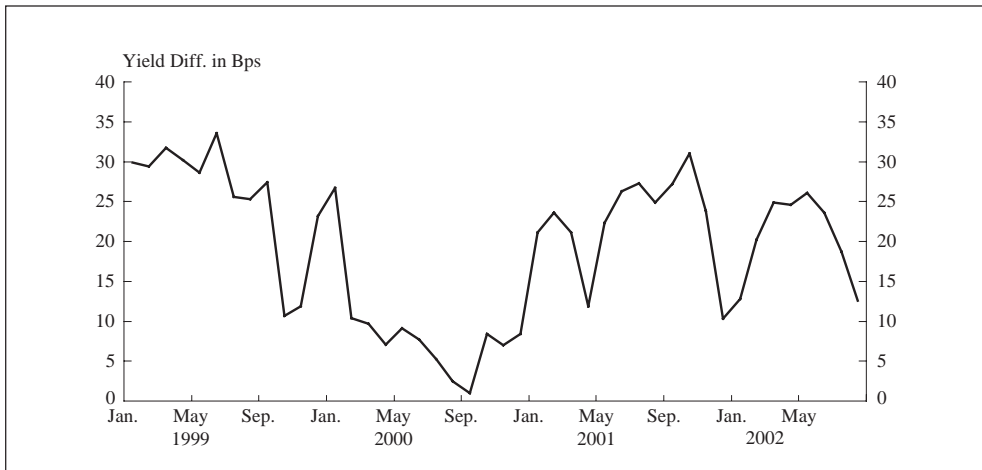


Data: Monthly redemption yields from Datastream – January 1999 to August 2002.

(2001) observe that the European government bond market seems to exhibit a behavior that may reflect the existence of multiple equilibria: since yields across different sovereigns are different, the markets for these issues are, by definition, segmented, which implies that the liquidity risk in the smaller segments is higher, which translates into differentiated yields, closing the vicious circle.

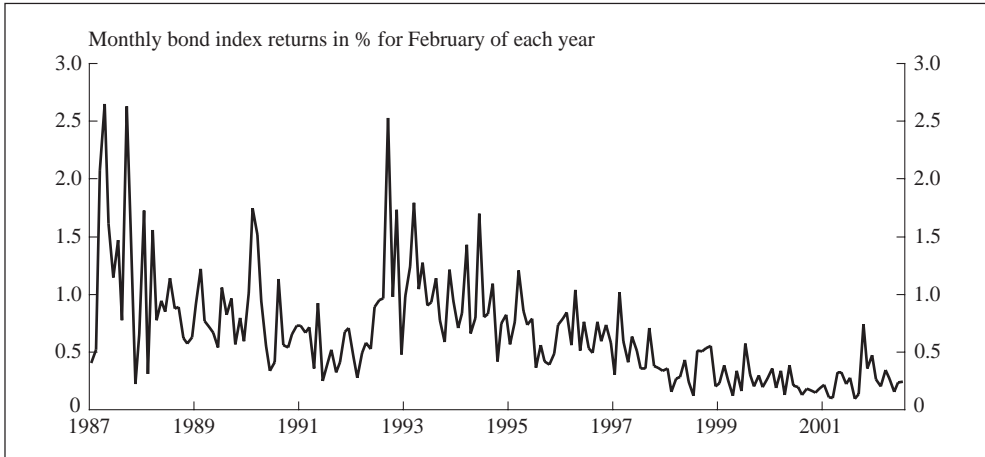
They also reflect that, at least conceptually, such a segmented market also has an equilibrium with full integration, that is, a constellation in which the participants’ beliefs

Figure 7: Post-1999 yield differential: France versus Netherlands



Data: Monthly redemption yields from Datastream – January 1999 to August 2002.

Figure 8: Monthly government bond return dispersions



Data: Returns computed from monthly bond price indices using the same bonds as those selected for the redemption yields, see note for Figure 1 – January 1985 to August 2002.

about integration are self-fulfilling. If market participants traded the different issues interchangeably on one single market, their liquidity would be identical (and higher), therefore their yields would be identical (and lower), and there would indeed only be one single market. In both cases, in the segmented equilibrium and in the integrated equilibrium, liquidity and its price (represented by the yield differentials) must be determined simultaneously, and this is the source of non uniqueness of equilibrium. Clearly, the equilibrium with a unified market is Pareto superior to the fragmented equilibrium because yields (and transaction costs) are lower in the former.

In view of this reasoning it is possible that the public bond markets of at least the Triple A issuers, Germany, France, the Netherlands, Austria, and Luxembourg, will in the future shift from one equilibrium to another to become one fully integrated single market. This shift towards a good, high liquidity equilibrium is just a possibility, however. In theory, this could occur without further institutional change, simply as a result of changing market perceptions. Positive exogenous shocks on market fundamentals, such as transaction costs, demand, or exchange rates, also have the potential to move the EMU public bond market towards this high liquidity equilibrium. In this perspective, changes in issuing practices, such as concentration of issue sizes or coordination of issuing dates, may have effects far larger than the marginal effect of reduced transactions costs.

Investigating which additional measures of financial integration, if any, would be sufficient to promote the good equilibrium and whether the currently contemplated measures will succeed in doing so is an important question for research. At the current levels of public debt in EMU member countries (Table 6), the benefit of the elimination of the spurious yield spreads can be conservatively estimated at €5 billion!<sup>2</sup> A simple way to get at the result

<sup>2</sup> Total outstanding debt of the euro area minus Germany (2,470 billion) multiplied by 20 basis points = 4.94 billion.

Table 6: Domestic government debt markets  
(EUR billion; end of December 2000)

	Short-term debt	Long-term debt	Total
Italy	102	885	987
Germany	10	599	609
France	43	573	616
Spain	45	225	270
Belgium	27	173	200
Netherlands	6	169	175
Austria	5	81	86
Finland	5	59	64
Portugal	0	46	46
Ireland	3	22	25
Luxembourg	0	1	1
Total	246	2,833	3,079

Source: ECB, The Euro Bond Market, July 2001.

would be to establish a centralized agency in charge of issuing debt on behalf of the euro area's governments. Such a proposal was made in 1999 with a view of harmonizing the maturity structures, delivering a true and single benchmark curve and helping reduce the cost that some member states have to pay to primary dealers to promote their debt outside the country (Favero et al., 2000). It was met with considerable scepticism, because such a set-up implies some collective responsibility for national debts, which runs contrary to the Maastricht Treaty. The stakes are high, however, and, in the absence of a convincing strategy to achieve a truly unified public debt market via decentralized measures of integration, the debate on the establishment of a multilateral agency should be reopened.

## 4. Equity Returns and Risk Premia

### 4.1 Fundamentals

Our end-point is to assess the impact of financial integration on the pricing of equities and on equity risk premia. Our first step led us to focus on the effects of the euro on the risk free component of equity returns. We now turn to the equity premium. The first order of business is to check the extent to which the nature of the assets being priced has been affected. Indeed, financial integration is not proceeding in a vacuum and the impact of the euro is not limited to the elimination of currency risk. Currency unification is synonymous with full convergence of monetary policies and, in the euro area, with some degree of harmonization of fiscal policies as well. Even if the prediction of De Santis, Gérard and Hillion (1999) turns out right and the equity pricing mechanism is little affected by the euro, the resulting changes in the underlying fundamentals changes could nevertheless have a significant impact on equity markets.

It is often useful to think of equity prices or returns as being affected by a series of factors which one typically associates with the specific characteristics of the companies being priced, the industries to which they belong, their country of origin and a common global (or euro-area

in the case at hand) factor. A truly global market factor may also be considered. This perspective is useful to reflect on the fundamental changes brought about by the euro and the single market for the valuation of European equities and it will be pursued further in later sections.

At the *company level*, one should note the undisputed growing trend toward multinational companies. This trend may be unrelated to EMU and the Single Market – although this is debatable – but it is in any case relevant for the identification of the factors determining equity returns. In the same vein, a trend toward multi-industry firms, i.e. conglomerates would also be relevant. At this level, fashion comes and goes, however, and after a much criticized tendency for managers to spread their wings across industries, the current mood is to encourage firm managers to stick to their trade and to be “focused”. On the other hand, growing international trade, especially to the extent that it concerns intermediate goods, de facto renders the operation and performance of a company with a given location and affiliated with a given industry more dependent on economic events originating in other countries and other industrial sectors.

The euro and the single market do not seem to have a specific impact on the development of industrial *sectors*. The growing importance of services and above all the recent, extraordinary evolution of the IT and Telecommunications sector are worth mentioning, however, as the latter in particular may introduce a distortion in the representation of the importance of the industry factor in determining equity prices and returns.

Much more is to be said of the *macro environment* precisely because the underlying context of financial integration, in particular the EMU and the single market, is likely to have a profound impact on economic structures and, of course, on macroeconomic policies.

The impact of economic development and regional integration on economic structures has been the object of a very rich literature. Most arguments support the view that the lowering of barriers to trade goods and financial assets tend to promote more specialization of national industrial structures. The first such arguments are those building on Ricardian trade theory: decreases in impediments to international trade make it possible for countries to stick to their comparative advantages. The new economic geography has emphasized the existence of pecuniary externalities associated with agglomeration as a source of geographical specialization. Monopolistic competitors tend to cluster to take advantage of these externalities, a theory for which Krugman (1991) finds support in the comparison of employment patterns in the United States (which is more specialized) and in Europe (which is less). A strategic objective toward diversification – so as to produce a more stable economic structure – and a taste for diversity may be counteracting forces. While the latter may suggest that a higher level of economic development could be associated with less specialization, *ceteris paribus*, they also imply that economic integration, to the extent that it means the lowering of trading costs, on the one hand, and financial integration providing other means for diversification, on the other, should be associated with more specialization at constant levels of development.

Let us review the importance of the diversification argument for financial integration, returning for that purpose to our polarized world. Under full financial segmentation, local investors have no choice but to finance local firms and, conversely, firms depend on local investors for their financing. Limited diversification possibilities for investors mean that they will require a high compensation for holding participations in risky, undiversified firms. The cost of capital of the latter will be high. This implies that firms have an incentive to diversify on their own if they can, especially if they can do it by expanding abroad, for example through the build-up of conglomerates or association with multinationals. This is the case even if from a larger perspective these attempts at diversifying at the firm level are inefficient. Similarly,

within a country, one may observe the existence of productive activities which may be relatively inefficient or for which the country may not have a comparative advantage simply because they increase the local diversification possibilities and as a result benefit from a lower cost of capital.

By contrast in an integrated financial market, there is no financial premium to industrial sectoral or geographical diversification and better specialization is affordable. Financial integration thus has the potential of changing the mix of investment projects being financed and to open the way to a higher degree of industry specialization across countries.

Imbs and Wacziarg (2002, forthcoming) show empirically that industrial concentration follows a U-shaped pattern as a function of the level of economic development: after an initial development phase where agriculture takes the lion's share of resources, countries start to diversify, with labor being spread more equally across various industrial sectors. But at a later stage of development they begin to specialize again. The turning point occurs relatively late in the development process and is estimated at per capita GDP of approximately \$10,000. They interpret their findings as resulting from the interplay of productivity increases and decreasing transport costs. The latter clearly constitute a force of concentration. In a Ricardian model, an increase in a country's productivity relative to the rest of the world translates into an increasing range of goods being produced domestically. The observed stages of diversification then depend on which force dominates at any given point in a country's growth path.

These effects on industry structures may well be offset by the convergence of macroeconomic policies that is a hallmark of EMU. With a single monetary policy, closely aligned interest rates, and fiscal policies subject to a common discipline, the macroeconomic influences on company profits and euro-wide discount factors are clearly converging. Policies and structures are thus expected to exert conflicting influences on the fundamentals of equities. Now, structural changes are expected to be slow. Moreover, there may be a ratchet effect of earlier decisions of localization and diversification. With fixed costs, slowly changing incentives may not lead to a reversal of previous decisions. By contrast, the effects of the coordination of macroeconomic policies are more immediate and the changes provoked by the euro are in some cases dramatic. The convergence of yields of public bonds discussed earlier is a case in point. All in all one could thus rationalize that euro-area business cycles are becoming more as well as less synchronized. But our prior is that the effects of policy will dominate and that the (orthogonal) country factors in equity returns will lose some of their importance.

Note that somewhat ironically if common policies make country specificities within the euro-area less prominent, they also decrease the diversification benefits brought about by financial integration. In other words, as financial integration makes diversification within the euro-area increasingly easy, economic integration makes diversification inside the euro-area increasingly less relevant. In that sense, there is some redundancy in economic and financial integration! We now turn to a discussion of the expected impact of financial integration on the pricing of equity securities.

## 4.2 Pricing

### 4.2.1 A Unified Risk Premium?

The risk premium on a given asset is typically defined as the product of the market price of risk and an appropriate measure of the riskiness of the asset. The celebrated CAPM holds that the latter is a function of a single factor, the return on the market portfolio. An asset is therefore considered as risky to the extent that it contributes to the risk of the overall market portfolio. This view of the world has implications for the impact of financial integration on the pricing of equities. We start by deriving them. In the next sub-section, we will generalize this perspective and consider the possibility that more than one factor impacts on the riskiness of an asset.

In the case of full segmentation, local investors hold undiversified portfolios (from the viewpoint of the global economy). Their reference market portfolio is limited to national firms. The appropriate measure of risk for the local country portfolio then is its standard deviation. Everything else being the same, one expects that the risk premium will be high as a result of investors holding (internationally) undiversified positions.

In a single financial market, investors hold internationally diversified portfolios. The proper measure of risk for the local country portfolio is not its standard deviation but its beta with the world portfolio. There is thus less undiversifiable risk to be remunerated. There is thus a presumption that the risk premium should be lower.

To make this concrete, let us follow Stulz (1999) and assume a simple situation where all individuals display constant relative risk aversion. The price per unit of risk is constant and identical in initially segmented markets or in the whole integrated area. Let us denote it by  $P$ . The reasoning above effectively states that under segmentation the risk premium on a given security  $i$  will be  $\sigma_i^2 P$ , where  $\sigma_i^2$  is the variance and  $\sigma_i$  is the standard deviation of the returns on asset  $i$ . The same asset in an integrated market will yield a risk premium of  $\beta_i P = \rho_i \sigma_i \sigma_m P$  where  $\beta_i$  is the beta of asset  $i$ , a function of its covariance with the market portfolio which can also be written in terms of the correlation coefficient between the market portfolio and the return on asset  $i$ ,  $\rho_i$ . From this little exercise one obtains that if the following condition is satisfied

$$\frac{\sigma_i}{\sigma_m} > \rho_i$$

and thus in particular if  $\sigma_i > \sigma_m$ , then the risk premium in an integrated market will necessarily be smaller than in segmented markets. We will check the validity of this condition for the euro-area in Section 4.4.1 below.

More generally, degrees of risk aversion may vary from one country to the next (e.g. a popular assumption of habit formation implies that the rate of risk aversion fluctuates with the growth rate of consumption), as well as from one period to the following, and as a result, under market segmentation, the price of risk may vary across countries. It will be a function of the local capital markets conditions: relative abundance of savings, relative risk appetite. With integration, the price of risk converges. It is not impossible that the single post-integration risk premium is in fact higher for some markets. This is the case if, before integration, a given country was characterized by a relative abundance of savings, a stronger than average tolerance to risk and/or a scarcity of risky investments to be financed. This cannot hold on average, however. For most market participants one expects that the risk premium will be lower and more stable after integration.

#### 4.2.2 *A Multi-factor Decomposition*

We now extend this discussion by using a multi-factor approach to the equity risk premium. As anticipated in Section 4.1, we consider the possibility that equity returns are impacted by several (orthogonally defined) factors: sectors, countries, global (euro area/world). This follows a tradition initiated by Heston and Rouwenhorst (1994). Following their contribution, a very large literature has estimated the relative importance of these various factors. For our purpose, the key result has been the almost unanimously conclusion that, until very recently at least, country factors dominated industry factors. That is, the fraction of the variance of equity returns (or excess returns) that can be explained by the variance of the country factors exceeds the portion of the variance explained by the variance of the industry factors.

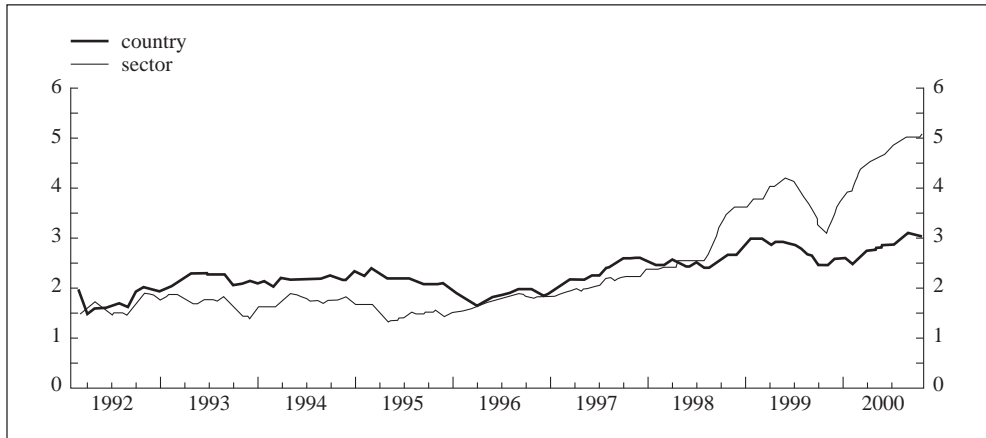
Rouwenhorst (1999) provides a useful update. He focuses on European stocks with MSCI data containing the returns of all 952 stocks in the MSCI indexes of 12 European countries and a data set ending in August 1998. With an eye on the potential impact of economic and monetary integration on the results of the variance decomposition, he concludes that the superiority of country effects has been effective at least since 1982 and that it has continued during the 1993-98 period “despite the convergence of interest rates and the harmonization of fiscal and monetary policies following the Maastricht Treaty”.

A couple of recent studies dispute the validity of this conclusion for the most recent sample period, however. Thus, while Isakov and Sonney (2002) confirm the dominance of the country effects for the period 1997-2000, they also detect a shift in the last part of their sample. Allowing for time variations in the decomposition, they find that industry factors are growing in importance. Their data tend to suggest that over the 36 weeks preceding the end of the year 2000, industry factors explain a larger fraction of the variance of returns.

Galati and Tsatsaronis (2001) come up with even more definitive conclusions. Using the same methodology they look at the companies in the FTSE Eurotop300 but complete their assessment with a time series analysis of the weighted factor averages. Their results are summarized in Figure 9 from which one infers that industry factors have become more important than country factors for the first time a few months prior to the formal arrival of the euro. Contrary to Rouwenhorst (1999) and even Isakov and Sonney (2002), they also find that the superiority of the country factors was insignificant since the beginning of 1996 and even as early as 1992. This points to a difficulty with this literature. The results obtained with the Heston-Rouwenhorst approach appear to be very sensitive to the data used, the definition of sectors, and the period of analysis. Table 3 in Isakov and Sonney (2002), for example, shows that the ratio of the fraction of return variances explained by country and industries varies in a ratio of 2 to 11.5! And the results in Rouwenhorst (1999) are clearly incompatible with those of Galati and Tsatsaronis displayed in Figure 9. This observation will lead us to complement the view proposed by this literature with a simple and robust approach focusing on the correlations of the returns on country and sector portfolios or indices. We anticipate our demonstration that there must be a one-to-one relationship, under the Heston-Rouwenhorst maintained hypotheses, between the results of the variance decomposition and these correlations and now turn to a discussion of the impact of financial integration on the pricing of such portfolios or indices.

As mentioned before, financial integration implies the convergence toward a single pricing kernel or discount factor. This pricing convergence affects both country and sector portfolios. Full segmentation would mean that a basket of French stocks is priced by French investors in a way that is largely disconnected with the way a basket of German stocks is priced by

Figure 9: Country versus sector effects



Source: Galati and Tsatsaronis 2001.

German investors. It also means that the German stocks in a particular industry basket would be priced via a pricing kernel that could differ and evolve differently through time from the pricing mechanism of the French stocks belonging to the same industry. Note that in the case of full segmentation the very concept of a euro-wide sectoral index is not operational since it does not correspond to a portfolio available to the representative investor.

The convergence of risk-free rates and of risk premia expected under financial integration implies that, *ceteris paribus*, both country and sectoral basket of stocks will have a tendency to be priced closer together. But of course, our discussion in the previous two sections indicates that the *ceteris paribus* does not apply. If the pricing component of equity returns converges, the objects being priced also change, potentially introducing increasing divergence in returns. Thus, in particular, if a country industrial structure becomes more specialized, the fundamentals of country indices are getting more dissimilar and returns on country indices are subject to two conflicting influences that could entail more synchronized as well as less synchronized returns. If on the contrary national economic structures are getting more alike or/and if the influence of increasingly common policies are the dominating factor, then indeed, both components of the pricing of country indices would display a tendency toward increasing correlation.

As far as sector returns are concerned, the pricing effect of financial integration should in principle dominate: financial integration should translate into portfolio of stocks representing an industry across the geographical area being priced closer together. But short samples are a specific problem here: a specific history of sectoral shocks, leading for instance to a temporarily diverging performance (*viz.* the IT sector in recent times) may pollute our appreciation of the correlation between industry indices. Over the medium run, it is difficult to make a link between increasing financial integration and diverging sectoral returns. Note that the short sample problem also plagues the appreciation of the correlation between country returns if countries do not correspond to well diversified portfolios of sectors. Isakov and Sonney (2002) suggest this is not the case, however. We now turn to a discussion of quantity adjustments in search for evidence that financial integration is leading to behavioral changes on the part of investors or borrowers.

### 4.3 *Arbitrages – Portfolio Flows (Quantities)*

The object of this section is to document changes in portfolio allocation and portfolio flows that would be indicative of the significance of financial integration for private and institutional investors. Financial integration implies arbitrage opportunities, indeed, is brought about by the exploitation of such arbitrage opportunities. This in turn signifies some adjustments in quantities, either from euro-area investors or from investors outside the area. Accordingly we would like to document the extent to which there is something changed in the investment strategies of European and non-European investors relative to equity positions in the euro area. We need to repeat our earlier word of caution, however.

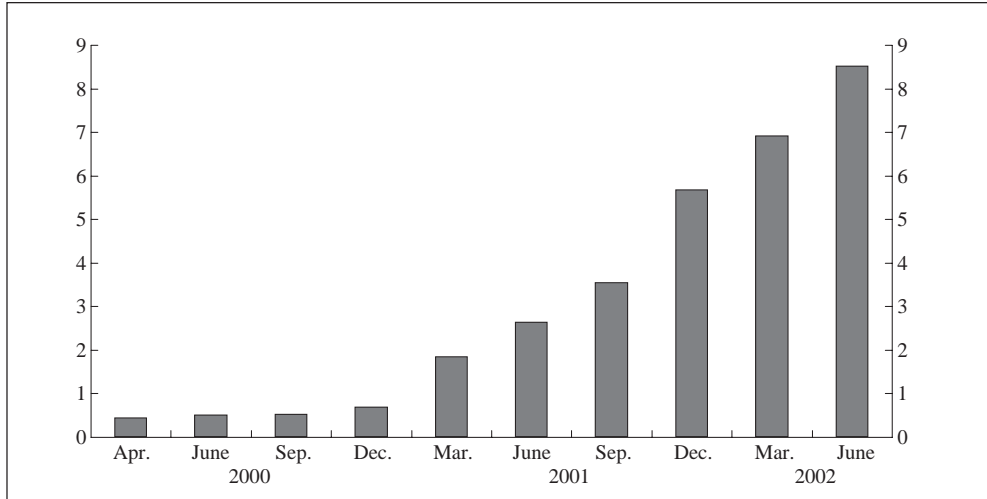
Market circumstances since the advent of the euro have been spectacular, on the upside until about mid-2000, on the downside ever since. One would not be surprised if, over the period under review, actual portfolio positions held by private and institutional investors, and changes in them, had been dominated by these circumstances, making it extremely difficult for observers to detect the impact of the structural changes. And indeed the evidence reported in the first sub-section below is relatively inconclusive. For this reason, we also focus, in the second sub-section, on the investment *process* as opposed to the *results* of this process (portfolio holdings) only. This is warranted because of strong evidence that the euro has been a catalyst for a significant process change likely to produce, in turn, changes in results measurable over an average investment cycle. At the level of quantities, we believe this process transformation is by far the most significant identifiable change affecting equity investments and our task will be to understand its impact and rationale.

#### 4.3.1 *General Description of Portfolio Flows*

In this sub-section, we document the most relevant developments in equity portfolio flows and holdings. We start with two observations for which the responsibility of the euro is much in doubt: the equitization of the euro area and the growth of passive investing. It appears that the euro area has developed, over the recent years, a more pronounced appetite for equity investing. The likely culprit is the buoyant stock prices of the 1999-2000 period resulting in increased equity issuance – international equity issues by euro area companies have doubled compared to the previous two years to reach a record high of \$119 billion. Note, that, while impressive, this growth rate is, on balance, slightly behind the 119% rate observed for the block of developed countries during that period. Also relevant for this phenomenon is the fact that the advent of the euro coincided with the creation of new equity markets: Neuer Markt in Frankfurt, Euro NM in Belgium, Nuevo Mercado in Milano, Nouveau Marché in France, etc.

The popularity of equity investing is also manifest through the proliferation of Exchange Traded Funds (ETFs), particularly equity sector funds. ETFs are registered investment vehicles that are designed to replicate an index. They are quoted like stocks in contrast to traditional equity funds, they are thus more transparent. And they have the lowest expenses of any registered investment product. The assets under management of European ETFs have gone from nearly non-existent in early 2000 to approximately USD 9 billion in June 2002 (Figure 10). Europe by now has the largest number of ETF sponsors (12) offering 92 ETFs with 154 listings, and a good proportion of the funds represent sector and industry portfolios. Again, these numbers are impressive, but when compared to their US and Japanese equivalents, the picture is somehow less clear cut. Indeed, out of the 120.6 USD billion assets under management by ETFs in June 2002, 90.1 billion were managed by US ETFs while Japanese ETFs managed 14.1 billion. In the first quarter of 2002 alone, assets under

Figure 10: European ETFs: assets in \$ billion



Date	2000				2001				2002	
	Apr.	June	Sep.	Dec.	Mar.	June	Sep.	Dec.	Mar.	June
Number of ETFs	3	3	3	6	16	33	43	71	92	92

Source: Morgan Stanley: Exchange Traded Funds: A Global Overview, July 16, 2002.

management of ETFs increased by USD 15.9 billion, of which 7.7 billion were accounted for by Japanese ETFs and 5.5 billion from US ETFs. On this front, the evolution in Japan is thus even more spectacular than what we see in Europe.

Portfolio flows may be quasi automatically generated by the growing importance of passive investment strategies linked to new equity and fixed-income benchmarks. Indeed, the creation of the single area has been accompanied by the birth of new indices that are area-based (for example, MSCI EMU, EuroStoxx, FTSE Euro100, etc.) or global industry/sector based (ie, EuroStoxx Banks, EuroStoxx Energy). These indices are widely used in portfolio

Table 7: Possible pension fund equity market flows as a result of EMU

(in USD billion)

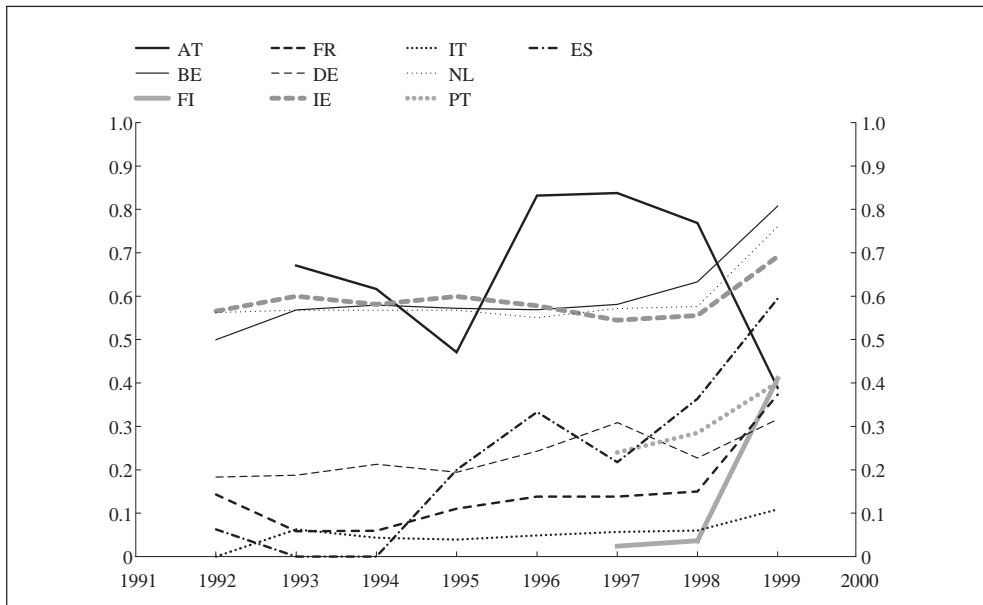
	Before EMU	After EMU	Net gain from EMU
Austria	0.6	1.5	0.9
Belgium	5.4	5.6	0.1
Finland	3.6	3.5	0.0
France	21.6	31.9	10.3
Germany	16.8	38.4	21.6
Ireland	8.3	1.8	-6.5
Italy	6.3	17.2	10.9
Netherlands	68.0	21.0	-47.1
Portugal	1.1	2.5	1.4
Spain	3.1	11.6	8.6
Total	134.9	134.9	0.0

Source: InterSec 1998 Reports and MSDW estimates.

indexation or as underlying for exchange traded funds (ETFs). The new country weights in the new benchmarks call for portfolio re-balancing. In late 1999, Morgan Stanley’s Research projected that the flows shown in Table 7 would occur amongst EMU countries following the re-balancing of Pension Funds’ equity portfolios. The figures are in billions of USD and are calculated assuming that each pension fund will invest in the participating countries proportionally to their equity market capitalization. While this assumption may be somewhat strong, it is nevertheless consistent with a passive replication of an EMU area index. On this basis, the winning countries in terms of inflows are the big market capitalization countries such as Germany (+21.6 billion), France (+10.3 billion) and Italy (+10.9 billion). Because Dutch pension funds invested heavily in their home equity market (which is tiny compared to other EMU countries) prior to the euro, the Netherlands would experience the largest equity portfolio outflows (-47.1 billion). Ex post, the ECB (2001a) announces negative outflows for Ireland and Belgium because the flows benefited mainly to large capitalization firms, which are not present in either countries.

The impact of the effective lifting of currency matching rules restricting institutional investors is one of the most interesting effects of the euro to be documented. Again we have to warn that market conditions since the inception of the euro may be a determining factor of what is observed. Figure 11, taken from Adam et al. (2002) shows that the share of foreign equity held by euro-area pension funds was roughly constant in the majority of the countries before 1998 (this is consistent with Detken and Hartmann, 2000), but the share seems to be on an upward trend since 1998. Danthine et al. (2001) present specific evidence concerning the asset allocation and international diversification of German investment funds covering the

Figure 11: Pension funds: Foreign equities as a percentage of total equities invested: Euro area countries (1992-1999)



Source: Adam et al. (2002)

Table 8: Asset allocation and international diversification of German investment funds 1990-1998

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total assets under management (DM billion)	220	262	279	370	399	462	572	785	1004
Equity (%)	20.2	20.7	21.9	27.7	27.8	27.0	30.3	37.9	41.9
<i>of which:</i>									
domestic equity	80.8	77.7	77.1	73.8	71.3	72.7	68.9	63.2	48.7
Bonds (%)	67.0	69.3	68.6	63.6	63.5	64.5	61.8	54.4	50.3
<i>of which:</i>									
domestic bonds	52.9	57.8	64.2	67.2	70.4	75.5	76.7	73.8	73.4
Other (%)	12.8	10.0	9.5	8.7	8.7	8.5	7.9	7.7	7.8

Source: Danthine et al. 2001 – Bundesbank (1999).

1990-1998 period. Their results, shown in Table 8 first indicate that the proportion of equities in the model portfolio has increased relative to fixed-income assets (from 20.2% in 1990 to 41.9% in 1998). Secondly, the share of domestic equity went from nearly 81% in 1990 to 48.7% in 1998. This latter evidence is clearly suggestive that this class of German investors are buying more and more euro area and non-euro area equities. This accords with results in Adam et al. (2002). Hardouvelis et al. (2001) provide similar evidence on the equitization of euro area pension funds and life insurance companies.

Ironically, the emergence of the single currency has also brought about portfolio concentration issues and the requirement to maintain a minimum number of investment currencies into the portfolio may lead euro area and non-euro area investors to seek diversification opportunities outside the EMU area. Evidence along this line is found in Table 9 which displays aggregate data on portfolio flows. The table is constructed by summing monthly flow balances by asset class in each year. Total flows into the euro area equities appear to have been negative from 1998 to 2000 while they were positive in 2001.

Of course net flows also depend on the positions taken by investors from outside the euro area. We report illustrative evidence on this score for a sample of American and Swiss institutional investors. Non-euro area investors are as likely to attempt to exploit the new

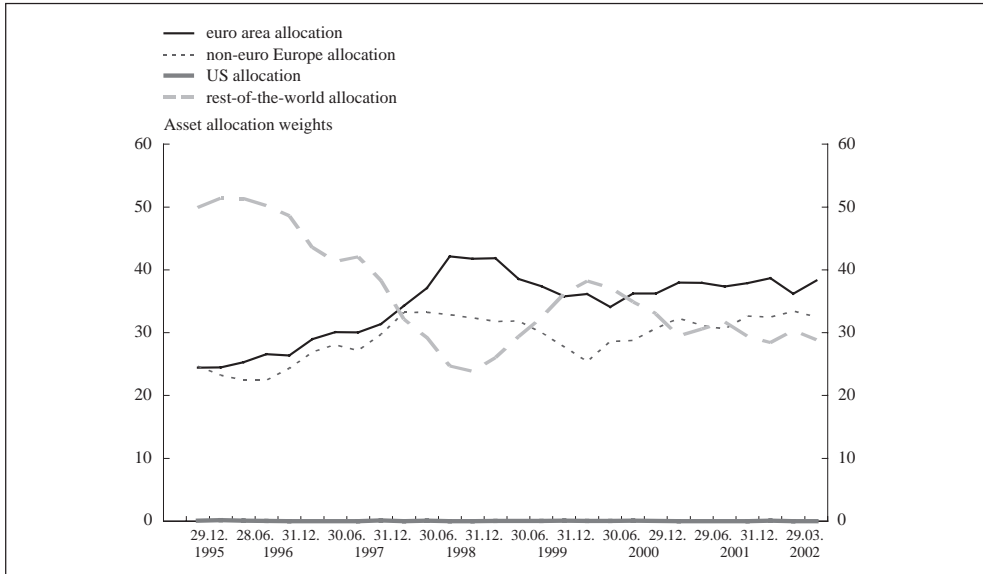
Table 9: Portfolio investment in euro area

(Balance in EUR billion; ECU in 1998)

	1998	1999	2000	2001	2002-June
Equity	-12.2	-63.9	-243.3	144.3	10.7
Bonds and notes	-117.5	-36.9	126.6	-77.7	9.8
Money market instruments	19.7	55.2	5.1	-30.3	-17.5
Total Balance	-110.0	-45.6	-111.6	36.3	3.0

Source: ECB data, via Morgan Stanley, London.

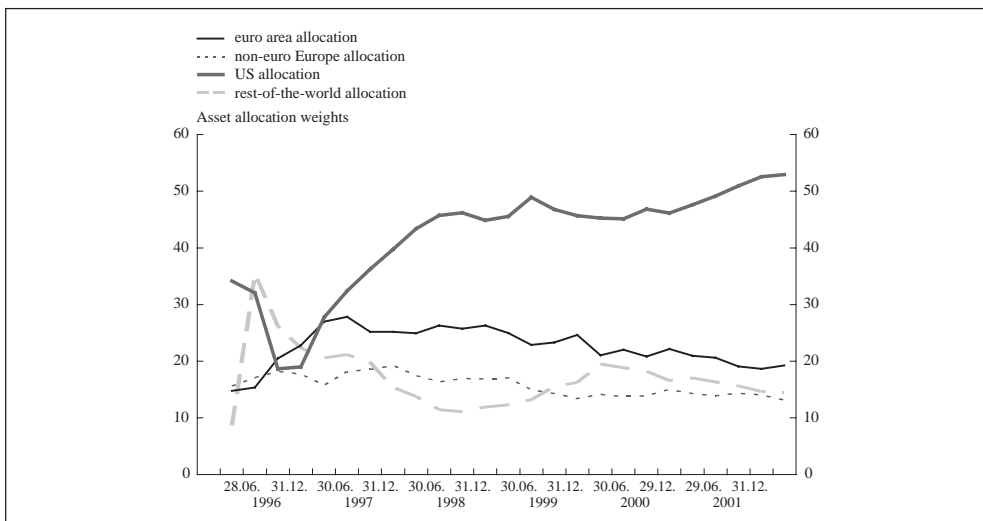
Figure 12: US\$: USA non-US Equities



Source: InterSec Research Corp.

arbitrage opportunities arising in the euro area as are the local residents. Figure 12 looks at the average allocations for U.S. pension fund assets invested in developed markets outside the United States as of the end of 2001. The sample represents \$ 365 billions of assets covering 120 portfolio strategies and accounting for 95% of all assets invested by US pension

Figure 13: CHF: Swiss global equities



Source: InterSec Research Corp.

funds in EAFE accounts (developed world ex-U.S.). It appears that the share of euro area equities has been increasing, from 24% in 1995 to about 38% in 2002. This is also true for non-euro Europe, although the share there is smaller. The increased interest in European equities from the US perspective has occurred at the expense of the rest of the world.

In Figure 13, the same InterSec data source is used for 25 Swiss pension fund portfolios representing USD 1.7 billion at the end of March 2002. The data is expressed as percentages allocated to different regions. From a Swiss perspective and in contrast to the evidence that emerges from the U.S. pension funds, the share represented by euro area equities seems to have declined, from almost 28% in June 1997 to 19% in March 2002. At the same time, the share of US equities in the Swiss portfolio has steadily risen, from 32% in 1997 to 53% in March 2002 while the non-euro Europe has a stable share.

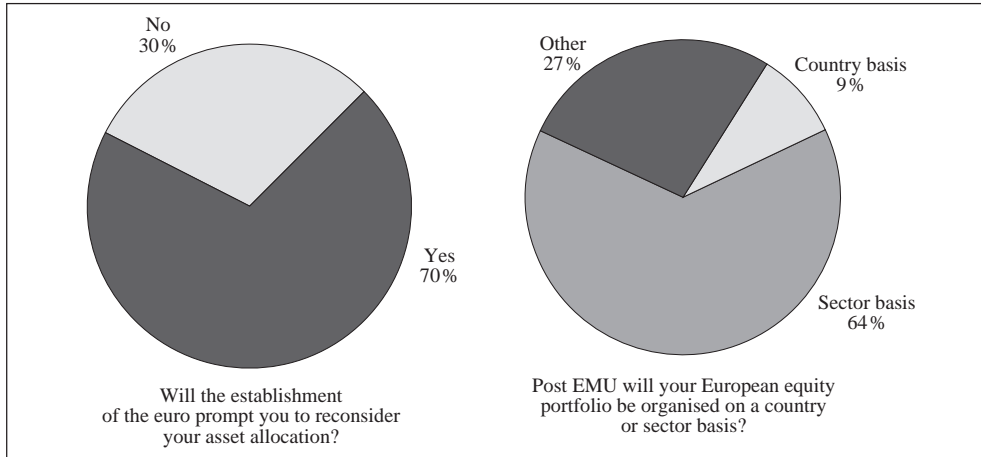
#### *4.3.2 The Shift in Asset Allocation Paradigm*

We now concentrate on the process by which portfolio positions are determined rather than on the results of the process (portfolio holdings or flows). Indeed, most observers would argue that the major change in the European equity scene is the shift in the asset allocation paradigm. A sizable fraction of analysts have in fact equated the euro with this change without even questioning the hypothesis that it is the direct result of financial integration. In this section we attempt at squaring this important stylized fact with our theoretical discussion.

It is a common practice among portfolio managers to follow a top-down approach to asset selection. Traditionally the first step of the top-down approach consisted in deciding on a country allocation grid, effectively placing first priority on an adequate geographical diversification of portfolios. The second step consisted in selecting the best securities in accord with this allocation, that is, within each national market to the extent permitted by the grid. This practice can be placed in the context of the discussion on the relative importance of country vs. industry or sector factors in explaining the cross-section of international returns. The standard position arguing that country factors were dominant supported the geographical slant of the top-down approach. Everywhere, the argument is now made that the country orientation of the top-down approach should give way, within the euro-area at least, to an industry or sector orientation. According to this view, the first step of the portfolio optimization should be undertaken at the industry level.

The results of a survey undertaken by Goldman Sachs and reported by Brookes (1999) showed strong evidence that the euro would indeed lead them to reconsider their asset allocation process – see Figure 14 – and that post-euro they would base their decisions on sectors rather than countries. In the same vein, a member of the industry, Clariden bank (a Credit Suisse group company) recently explained its newly adopted approach as follows: “In recent decades the world economy has behaved in an increasingly integrated fashion. In this environment, many large companies now operate on a global basis. Increasingly, one can speak of global industries. The implication, which is statistically supported, is that strategic or ‘top down’ equity decisions are more efficiently made within a global industrial sector framework than by using a regional or country approach. Recognizing this shift, Clariden Bank uses a global sector approach to equity strategy. We have established a comprehensive range of global equity sector funds. These are our core building blocks for strategy implementation.” (Clariden Bank, 2002). And one of the large players in the asset management industry, Capital International – \$600 billion under management – which has consistently adopted the practice of using a bottom-up approach, that is, of focusing on the (non-quantitative) analysis of individual firms and their stocks could state “We have not been

Figure 14: The Goldman Sachs/Watson Wyatt Survey



Source: M. Brookes (1999).

affected by EMU”, meaning by that, “Contrary to our competitors, we have not had to reorganize our analysts’ department” (Personal communication)!

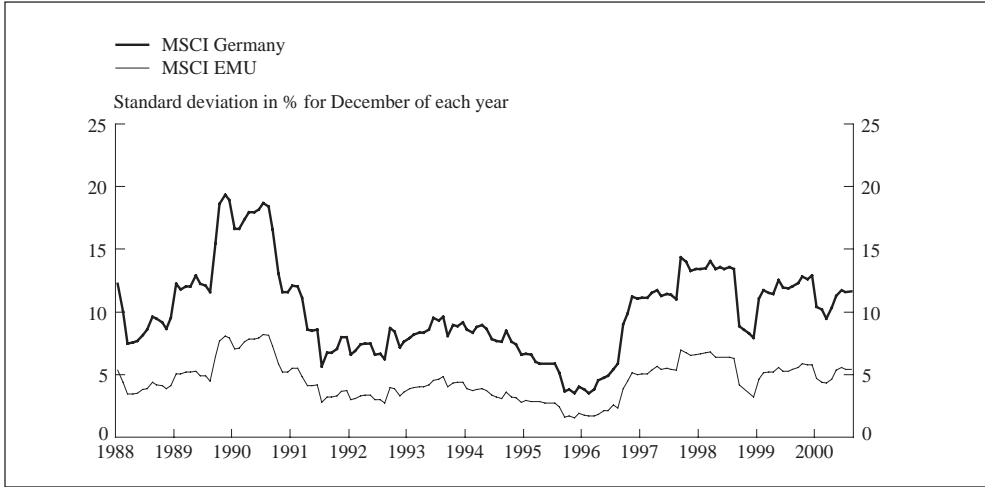
Now as the Clariden statement illustrates, the trend is global and goes beyond the euro-area. The change in asset allocation paradigm appears, however, to have coincided with the advent of the euro and in many ways to have been provoked by it. And superficially at least, it could be explained by the weakening of the superiority of country factors over industry factors, a reversal that could have resulted from the shift in macroeconomic fundamentals discussed in Section 4.1 and that we will confirm in Section 4.4.2. But as we have already mentioned the evidence presented in support of the supposed dominance of industry factors is neither unambiguous, nor overwhelming. And the change in paradigm is not in line with the documented prediction by De Santis et al. (1999) and others that the euro would only have a very limited impact on equity markets. Indeed, the change in asset allocation strategy is not a minor change. It is viewed as implying that the teams of analysts, until now organized along country line, are to be reorganized along industry lines. This in turn is meant to imply that the sought after competencies will be the ability to analyze the prospects of an industry and of specific firms within that industry as opposed to the prospects of a country, in particular its macroeconomic outlook. For all these reasons, we think the paradigm change constitutes a genuine puzzle deserving further scrutiny. This will be the object of Section 4.4.3.

## 4.4 Evidence

### 4.4.1 A Lower Risk Premium

In Section 4.2.1, we derived a necessary condition for the equity risk premium under integration to be lower than the equity risk premium under full market segmentation. It was observed that if the variance of the national equity indices was higher than the variance of the market portfolio then, under stylized conditions, financial integration would necessarily result in a lower premium. Figure 15 below plots the 12-month trailing standard deviation of the German equity index (MSCI indices) against the standard deviation of the MSCI EMU

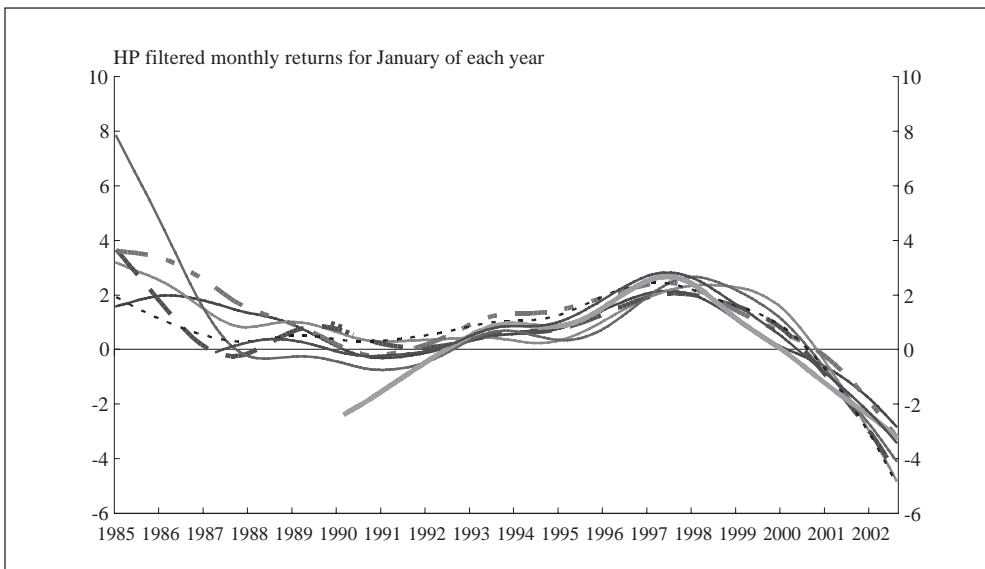
Figure 15: 12 Month trailing standard deviation



Data and methodology: Monthly MSCI price index series (inclusive of dividends) for each of the countries and the EMU area – December 1987 to July 2001. The first 12 monthly returns are used to compute the first standard deviation, and the window is moved each time by dropping one observation and adding a new one to obtain a time series of 152 standard deviations.

index. Similar results are found in the appendix for the other euro-area countries. These results are unambiguous. The EMU-wide systematic risk as measured by the standard deviation of the MSCI EMU index is always smaller than the corresponding measure for the

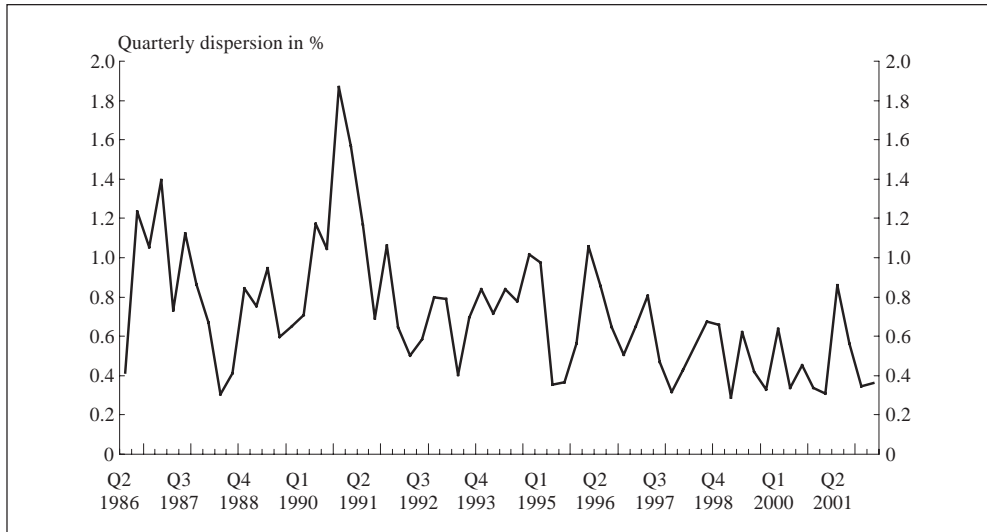
Figure 16: EMU countries HP-filtered equity returns



Source: Own calculations – Return data from Datastream.



Figure 18: Quarterly GDP growth rate dispersions



Source: GDP data from Datastream.

or decreasing correlations. If anything, those country pairs for which correlations were low during the first part of the sample turned out to be higher in the second part and conversely. Exceptions are Germany and Finland with a low correlation remaining low and the pairs France-Italy, France-Netherlands, and more surprisingly Italy-Finland with high correlations getting even higher.

This instability in pairwise correlations has its counterpart in the sizable volatility of the dispersions displayed in Figure 18. Here, however, a clear trend is identifiable. In fact, the average level of dispersion was 0.86 for the period from 1986 to 1994 and 0.58 only for the period from 1995 to 2002. There thus appears to be a significant evolution towards more synchronization in the business cycles (broadly defined in terms of raw data, as appropriate given the focus of our inquiry) of the euro-area countries.

Our results are in line with those obtained elsewhere in the literature with a variety of methodologies. See, among others, Agresti and Mojon (2001), Dueker and Wesche (1999) and Ormerod and Mounfield (2002). Imbs (1999) also concludes that euro-area business cycles have moved closer together and that they are now more alike than in the immediate postwar period. His analysis, centered on the estimation of Solow residuals, permits a finer diagnosis. He concludes in particular that supply shocks are no more synchronized between European countries than elsewhere and that the observed evolution is due to demand factors. This strongly suggests that the higher synchronicity of business cycles indeed results from increasingly common macroeconomic policies. It is thus not incompatible with a simultaneous tendency towards more specialization of industrial structures. For our purpose, we conclude that the fundamentals underlying European equities have changed indeed and turn to the examination of the implications of these changes for asset allocation.

#### 4.4.3 *Diversification Opportunities after EMU and the Practice of Asset Management (Part 1)*

In this section we review the evidence bearing directly on the changing reality of European equity returns with the puzzling change in asset allocation paradigm as our main motivation. We approach the data in the spirit of the multi-factor methodology introduced in section 4.2.2. We start, however, by outlining our reservations with the Heston-Rouwenhorst methodology traditionally used in this context; we then show the equivalence, under the restrictive hypotheses of that methodology, of an alternative, more flexible perspective focusing on the statistical properties of country and industry portfolios or indices. We then use this alternative approach to provide new evidence on the country vs. sector debate.

##### 4.4.3.1 *On the Heston-Rouwenhorst Methodology*

We have observed that the message of the literature that has recently applied the Heston-Rouwenhorst methodology is ambiguous with some studies supporting the hypothesis that the basis for asset allocation has changed and others confirming the long-standing superiority of country based allocation strategies. The inability of the factor method to illuminate the issue can, we believe, be attributed to two main causes. First, we hypothesize (and confirm later on) that the underlying relations have a strong cyclical component that makes it difficult for standard econometric time series methods to clearly identify structural changes of recent history (as are bound to be those associated with the euro). Second, the fundamentals evidence reviewed in section 4.1 makes us suspicious that the Heston-Rouwenhorst equation on which most of this literature is based is misspecified. The Heston-Rouwenhorst approach indeed imposes that any given firm belongs to a single country and a single industry with a constant exposure to the corresponding country or industry factor. This hypothesis is highly disputable in the face of the trend toward multinational firms and the reality that many firms have outputs or inputs connected with multiple industries.

This difficulty is evident in the task of Industry Classification Standard providers as highlighted in MSCI-S&P joint GICS (Global Industry Classification Standard) publications. The classification of companies into given sectors proves increasingly difficult with many business segments contributing to the turnover or the operating income, the criteria used to typify companies. Assigning a country to a company has become equally tricky with the country of origin or the country where the company is actually headquartered having often very little to do with the geographical areas that effectively influence the business of the company. Recent corporate stories, such as the Mannesmann–Vodafone acquisition, provide a vivid illustration. In this latter example, the company was “removed” from Germany to become a UK firm! Intuition would rather suggest that both countries (and probably others as well) have an influence on the operating performance of this company.

Our position receives further support from the observation that if the restricted Heston-Rouwenhorst model were true, the covariance of stock returns would show non-zero terms only for stocks in the same sector or belonging to the same country. This is far from being the case. To illustrate, the correlation matrix that we use in the next section corresponds to a higher level of disaggregation where we identify 77 country-sectors within EMU (The unit is a sector in a country). This matrix include 2,926 ( $77 \times 76/2$ ) independent correlations, out of which only 41 are less than 0.1 in absolute value during the first part of the sample, while only 68 correlations were less than 0.1 during the second part of the sample!

The final evidence we want to mention in support of our position comes from a recent paper by Brooks and Del Negro (2002b). These authors similarly argue that there are reasons

to believe that the exposure to a country factor may vary across firms in the same country, as some are more international than others. They go on to test this hypothesis and to unambiguously reject the constraints that the coefficients to own country factors are all unity.

For this variety of reasons, we propose to approach the data with an alternative methodology consistent with an unrestricted model simply stating that a security can be subjected to multiple sources of uncertainty owing to its multinational character (more than one country) and/or because it is a conglomerate operating in more than one sector (or, more generally, because its performance depends on the price of inputs originating in other industries than its own).

### *Factors versus Portfolios*

At this point, it is worthwhile clarifying the link between the above discussed factor analysis and optimal asset allocation strategy. First, one should be clear on the fact that *in fine*, the question of which factor dominates is of academic interest if knowledge of this fact does not permit designing more appropriately diversified portfolios. One can thus view the debate in the following light. Let  $n$  be the number of stocks making up the investment universe under consideration, and let us index them as  $i = 1, 2, \dots, n$ . These stocks can be repackaged into portfolios or indices along geographical lines, these are the country indices,  $C$ , or along industrial lines to form sector or industry indices,  $S$ . To make our life simple, assume there are only two countries,  $A$  and  $B$ , with two broad sectors/industries,  $a$  and  $b$ . The two industries are present in both countries. The stocks listed in country  $A$  ( $B$ ) will be indexed as  $i, j \in A$  ( $B$ ); similarly  $i, j \in a$  ( $b$ ) denote the stocks belonging to sector  $a$  ( $b$ ). The question at stake is whether  $\{C_A, C_B\}$  are a better base for diversification than  $\{S_a, S_b\}$ . In this section, we will consider that this is the case if  $\text{cov}(C_A, C_B) < \text{cov}(S_a, S_b)$ . In other words, country indices will represent a better base for diversification only if the associated covariance matrix is lower (in a statistical sense) than the one associated with sector indices. In the following section we will go one step further to take account of average returns in addition to measures of the covariation in returns.

In a two-country, two-sector and  $n$ -asset world, stock returns can be assumed to follow the following return generating process:

$$r_{it} = c_i + \alpha_i \varepsilon_{At} + \beta_i \varepsilon_{Bt} + \delta_i \eta_{at} + \gamma_i \eta_{bt} + u_{it} \quad (1)$$

Here,  $r_{it}$  denotes the (total) return on individual stock  $i$  in period  $t$ ,  $c_i$  and  $u_{it}$  are the specific, non-random and random respectively, components of the return on an individual stock;  $\varepsilon_{At}$  and  $\varepsilon_{Bt}$  are the (identically distributed) country factors;  $\eta_{at}$  and  $\eta_{bt}$  are the (identically distributed) industry or sector factors. All the factors and  $u_i$  are time-indexed and we assume that factors are orthogonal. The  $\beta$ 's are the sensitivities to country factors. One may hypothesize that  $\alpha_i > \beta_i$  for  $i \in A$  and reciprocally for  $i \in B$ . The Heston-Rouwenhorst type of literature has adopted a more restricted version of the above return generating process by assuming that  $\beta_i = 0$  for  $i \in A$  and  $\alpha_i = 0$  for  $i \in B$ . The corresponding hypotheses may be entertained for  $\delta$  and  $\gamma$  which stand for the sensitivities to sectors  $a$  and  $b$  respectively.

With this notation, country ( $C$ ) and sector ( $S$ ) indices are naturally represented by

$$C_A = \sum_{i \in A} r_i, C_B = \sum_{i \in B} r_i, S_a = \sum_{i \in a} r_i, S_b = \sum_{i \in b} r_i \quad (2)$$

One then obtains

$$\text{cov}(C_A, C_B) = \text{var} \varepsilon \left( \sum_{i \in A} \alpha_i \sum_{j \in B} \alpha_j + \sum_{i \in A} \beta_i \sum_{j \in B} \beta_j \right) + \text{var} \eta \left( \sum_{i \in A} \delta_i \sum_{j \in B} \delta_j + \sum_{i \in A} \gamma_i \sum_{j \in B} \gamma_j \right) \quad (3)$$

Similarly,

$$\text{cov}(S_a, S_b) = \text{var} \varepsilon \left( \sum_{i \in a} \alpha_i \sum_{j \in b} \alpha_j + \sum_{i \in a} \beta_i \sum_{j \in b} \beta_j \right) + \text{var} \eta \left( \sum_{i \in a} \delta_i \sum_{j \in b} \delta_j + \sum_{i \in a} \gamma_i \sum_{j \in b} \gamma_j \right) \quad (4)$$

At this point it is worth noticing that, in general, both covariances depend on both variances. Thus, if integration means smaller  $\text{var} \varepsilon$  (that is, the orthogonal component of the country factors become less important), then one would expect that *both* covariances, and not only the covariance of the country indices, should be affected. Even if  $\text{var} \varepsilon < \text{var} \eta$  – the country factor explains a smaller proportion of the variance of returns – we could have, under certain circumstances,  $\text{cov}(S_a, S_b) > \text{cov}(C_A, C_B)$  – that is, country portfolios remaining a better basis for diversification. The condition for this to be the case is given in Appendix B.

Now, when the restricted Heston-Rouwenhorst version of the model is maintained, whereby one imposes that  $\beta_i = 0$  for  $i \in A$  and  $\alpha_i = 0$  for  $i \in B$ , the above expressions simplify to:

$$\text{cov}(C_A, C_B) = \text{var} \eta \left( \sum_{i \in A} \delta_i \sum_{j \in B} \delta_j + \sum_{i \in A} \gamma_i \sum_{j \in B} \gamma_j \right) \quad (5)$$

and

$$\text{cov}(S_a, S_b) = \text{var} \varepsilon \left( \sum_{i \in a} \alpha_i \sum_{j \in b} \alpha_j + \sum_{i \in a} \beta_i \sum_{j \in b} \beta_j \right) \quad (6)$$

Thus, one clearly obtains

$$\text{var}(\varepsilon) < \text{var}(\eta) \Rightarrow \text{cov}(C_A, C_B) > \text{cov}(S_a, S_b) \quad (7)$$

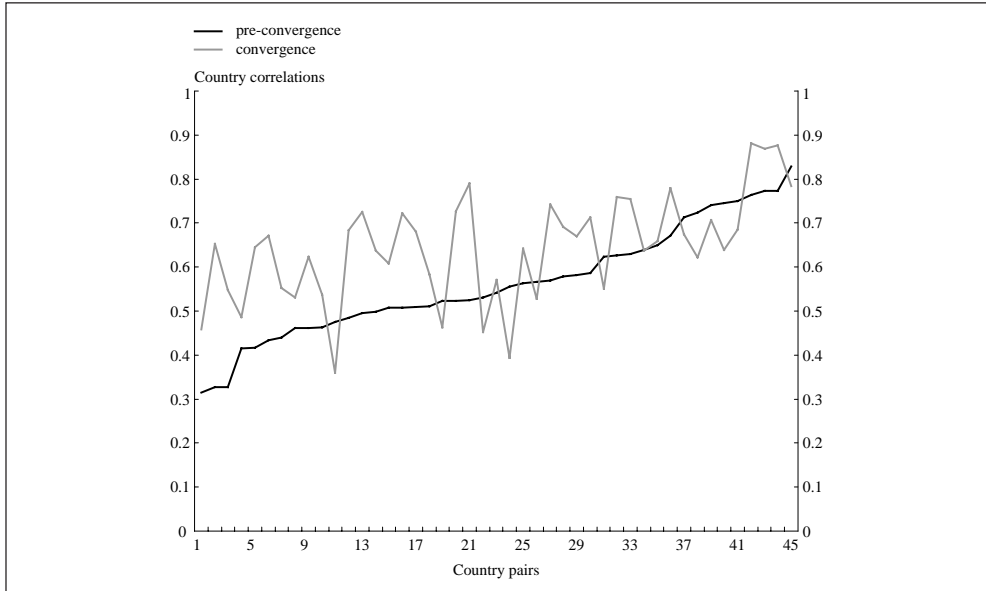
That is, in a setup where the asset manager is constrained to elect between a country or a sector dimension, whenever the fraction of the total variance explained by country factors becomes smaller than the fraction of variance explained by industry factors, the first step of an optimal asset allocation should be done at the level of sector or industry indices (and conversely).

With this result at hand, we now turn to the evidence that can be obtained directly at the level of country or sector indices. If the hypotheses behind the Heston-Rouwenhorst approach are valid, this evidence should provide a converging view on the evolution of equity returns. And by working at this level but using the concept of dispersion of returns rather than correlations, we will be in a position to better take account of the time changing dimension of the relationships under study. Furthermore, if as we have hinted the restricted Heston-Rouwenhorst hypotheses turns out to be invalidated, our approach remains operative as it directly bears on one important dimension of the practice of asset management.

### *Evaluating the Emerging Superiority of Industry Portfolios*

We now directly look at the statistical properties of equity returns working at the level of country or EMU-wide sector indices. We first adopt a medium run perspective and compare correlations among indices across two “long” sub-periods: one labeled pre-convergence (to the euro) goes from May 1987 to December 1994 while the second, labeled convergence,

Figure 19: Country index pair correlations – pre-convergence vs. convergence



Source: Datastream.

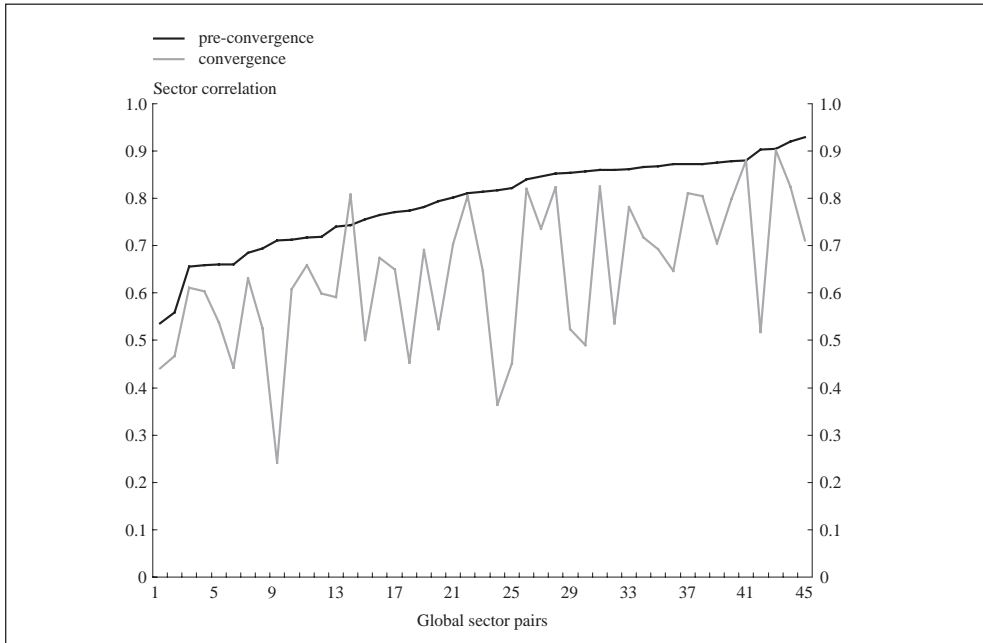
goes from January 1995 to August 2002. The data used here are the Datastream equity indices for countries and EMU global sectors.<sup>3</sup> The evidence is summarized in Figures 19 and 20. Figure 19 illustrates the evolution of pairwise correlations between country portfolios (or indices) over the period to August 2002. Pairwise correlations are computed for the first part of the sample and the results are ranked from lower to higher. The corresponding correlations are then plotted for the second part of the sample. The results are striking and appear to support the view that, possibly as result of the convergence of macro fundamentals, country indices have converged, implying a loss in diversification opportunities at the country level. Note that this result is statistically significant and robust to the definition of the convergence period.<sup>4</sup> By contrast, Figure 20 shows that the correlations between global sectors have decreased. Indeed, while the average country correlation has gone from 0.56 in the pre-convergence period to 0.64 in the convergence period, the average correlation of global EMU sectors has decreased from 0.79 to 0.64.

These results appear to be consistent with variance decompositions indicating the end of the superiority of the country factors. Before jumping to conclusion, however, we now take a shorter run perspective and repeat the exercise focusing on the post-euro period *stricto sensu* and on the period of corresponding length that has preceded it. The results are displayed in

<sup>3</sup> We use Datastream data anticipating our next step which will consist of working at a higher level of disaggregation where indices are defined by their twin country and industry dimensions. MSCI indices are not available at this level.

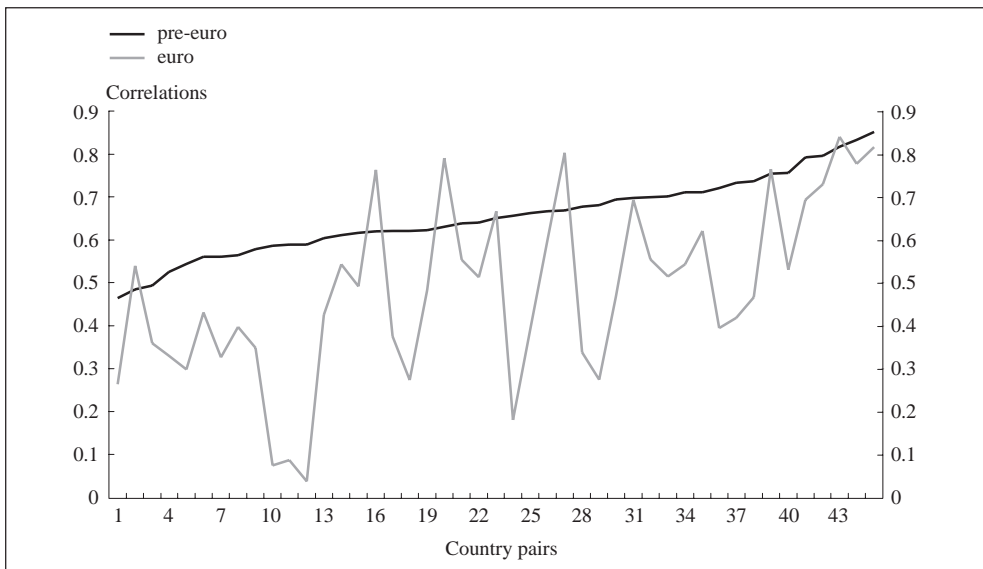
<sup>4</sup> In particular Adjaouté and Danthine (2001a) confirm this result with the break point defined as August 1997 and the pre- and post-convergence periods defined as 11-1995 to 08-1997 and 08-1997 to 04-1999 respectively.

Figure 20: EMU global sector correlations: pre-convergence versus convergence



Source: Datastream.

Figure 21: Evolution of country pair correlations: pre-euro versus euro



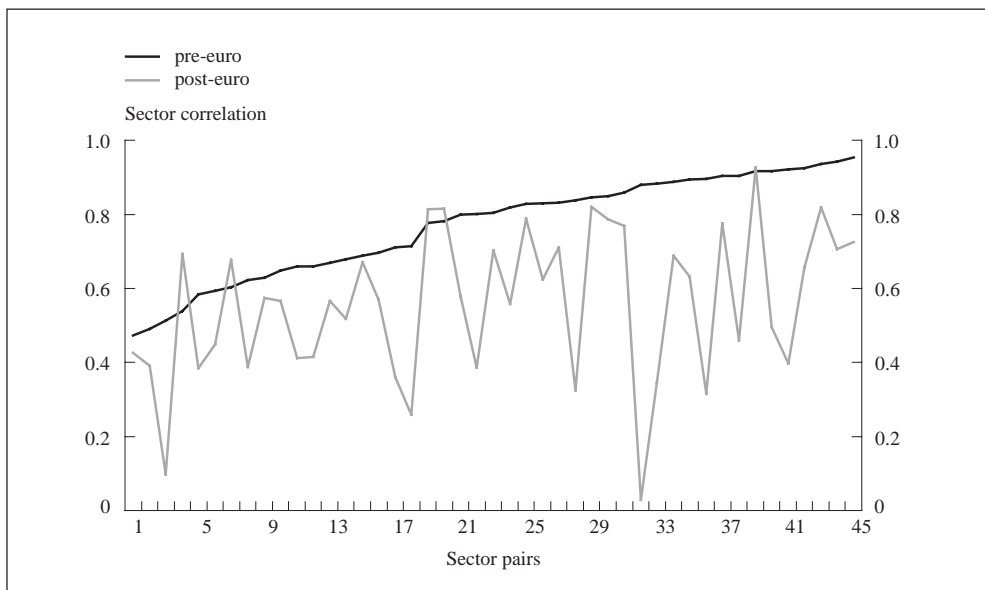
Source: Datastream.

Figures 21 and 22. While Figure 22 confirms that correlations among global sector indices are indeed lower in the euro period, the previously obtained conclusion is reversed in the case of country indices. Country correlations appear to have decreased over the euro period in comparison with the preceding two years. One may conclude from this first set of results that equity return relationships are highly time-varying. Caution is thus required before drawing conclusions, in particular, before concluding at the responsibility of structural factors such as financial integration or changes in macro fundamentals for observations on equity returns made over short samples.

The nature of the relationships under scrutiny suggests appealing to different descriptive methods permitting to better illuminate their time-varying dimension. This is why we turn again to the concept of cross-sectional dispersion. The global correlation/dispersion is particularly useful in that it can be generated as a time series for the available frequency of return data. It reports on instantaneous relations involving no time averaging and thus allows for a more thorough investigation of the evolution of the diversification opportunities in the EMU zone. The time series of raw country return and global sector return dispersions are displayed as Figures A and B in Appendix C. They are highly time-varying while also following some cycles. The more interesting cyclical pattern appears clearly if one filters the series to extract their slowly moving components. We use a standard Hodrick-Prescot filter for this purpose. The result is displayed in Figure 23 where the two series are shown together.

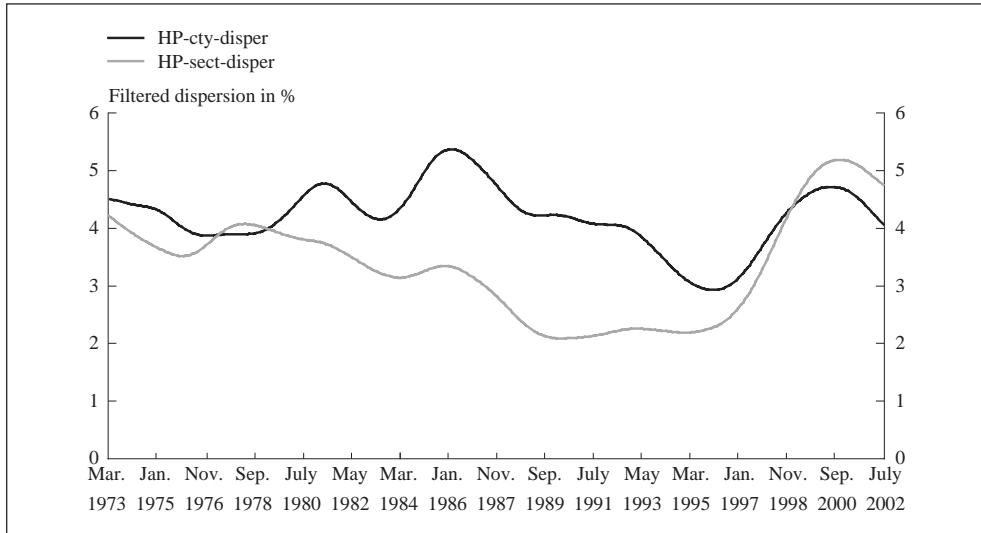
This analysis is revealing. Dispersions, indicative of instantaneous correlations, are highly time-varying in confirmation of the observations made on correlations. In addition, they appear to follow cycles. Both country and sector dispersions have displayed a downward trend until the fall of 1996, an evolution that Adjaouté and Danthine (2001b) credit for the widespread view that correlations among country indices were increasing in Europe due to European integration and that indeed diversification opportunities were being hampered. But

Figure 22: Global EMU sector correlations: pre-euro versus euro



Source: Datastream.

Figure 23: Filtered country and global EMU sector dispersions



Source: Datastream.

these dispersions have trended upward since reaching their most recent peaks around the end of 2000. By then the dispersion levels were at an all-time high for sectors and has almost matched their highest point of the mid-1980s for country indices. Thus, in contradiction to the often expressed view, the post-euro period has been very favorable for diversification within the euro-area whether on a geographical or on a sectoral basis.

Moreover, the superiority of a country-based asset allocation was clear for most of the period (in conformity with Rouwenhorst, 1999, but not with Galati and Tsatsaronis, 2001). There appears to be a reversal in this ranking taking place in early 1999.<sup>5</sup> This reversal can be associated with the reversal of the variance inequality in the Heston-Rouwenhorst context uncovered by Isakov and Sonney (2001) and Galati and Tsatsaronis (2001). This result is consistent with the result that the euro-area business cycle have become more synchronized, so that the orthogonal portions of the euro-area country factors are showing increasingly smaller variances. Yet, the variability of the relationships and the fact that reversals have occurred in the past (this was the case from around 1977 to 1979) suggests that caution must be exercised before definitively linking this reversal to permanent structural changes. Finally, the superiority of sector-based strategies cannot be fully established on the basis of these results as the difference between the two series is small by historical standards. In our view, these results provide only a weak justification for the change in asset allocation paradigm.

At this stage one may wonder whether the growing importance of sectors relative to countries is specific to the euro area, thus being plausibly associated with greater economic and financial integration, and whether it is likely to be permanent. Alternatively one may speculate that it could be a more universal phenomenon and that the recent stock market bubble could have something to do with it. Brooks and Del Negro (2002a) provide some answers. They first observe that the correlation of the US equity market with other developed

<sup>5</sup> The exact dating of the reversal is likely to depend on the specific filtering or data-smoothing method.

equity markets has moved from a low level of 0.4 in the 1980s to almost 0.9 in the late-90s. This may be due to a decline in home bias, so that the marginal investor in the German stocks is not necessarily German, and as a result country-specific investor sentiment now plays a minor role. Alternatively, the rise in co-movement of equity markets may be the manifestation of firms becoming more diversified internationally, and therefore increasingly exposed to the global business cycle, causing stock markets to move together more. Finally, there is the possibility that the rise in co-movement of stock markets is a temporary phenomenon associated with the recent stock market boom and bust. To test the hypothesis of permanent versus temporary effects, Brooks and Del Negro collect monthly data on 9,679 companies from 42 countries, covering the period January 1985 – February 2002. The companies in the sample represent three geographic regions in MSCI's terminology: Americas, Far East and Europe. The authors estimate the standard dummy variables model of Heston and Rouwenhorst (1994) and use the ratio of mean absolute deviations (MADs) of country and sector factors to assess the relative importance of each shock. The empirical evidence from the whole sample seems to suggest that industry factors have outgrown country factors in the late 90s, in conformity with what we found for the euro-area. However, when US stocks and companies in the telecommunication, media, biotechnology and information technology (TMBT) are excluded from the sample, the evidence of industry factors dominating country factors disappears. The absence of evidence beyond TMBT sectors and the US is interpreted by the authors as an indication that the recent dominance of industry effects over country effects is a temporary phenomena associated with the stock market bubble. At the regional level, however, they report that the European evidence is not affected by the removal of TMBT sectors. That is, even when these sectors are excluded from the sample, the recent superiority of sectors holds true in Europe. To summarize, in general the estimation of the relative importance of countries and sectors is sensitive to the inclusion or exclusion of specific countries (the US in particular) or sectors (TMBT). In the case of Europe, however, the fact that the evidence is more robust suggests something more fundamental is likely to be at work.

#### 4.4.4 *Diversification Opportunities After EMU and the Practice of Asset Management (Part 2)*

In the previous section we have found weak support only for as important a change as observed in the asset allocation paradigm. For this reason, we push the reasoning one step further. First, we provide a more complete account of the observed evolutions of equity returns in terms of portfolio efficiency. Indeed, the discussion in terms of correlation/covariance matrices abstracts from the other side of the asset allocation equation, that is, from the vector of country or sector returns. To complete our description and try to gain a full understanding of the issue, we conduct mean-variance optimizations on country and sector portfolios. Second, we find it useful to disaggregate the data one step further. This is because, while the factor analysis has a tendency to rationalize asset allocation strategies in terms of country or industry indices, it is not clear that one can understand *either* strategies relative to the alternative of proceeding to a full optimization across both countries and sectors. To illustrate, why limit oneself to 10 country indices or 10 global sector indices when one could equally well use the full  $10 \times 10$  matrix of what we will label “country-sector” indices?

In fact, not all sectors are available in all countries, or only for a very short time period. We thus use a sample of 77 country-sectors. Table 10 collects the evidence on the  $77 \times 77$  correlation matrix, pre- and post-convergence. The displayed summary statistics are interesting because they do not support the view that country-sector correlations have moved

Table 10: Country-sector index correlation stats

	Pre-convergence	Convergence
Minimum	-0.112	-0.064
Maximum	0.910	0.842
Average	0.407	0.406
Median	0.400	0.409

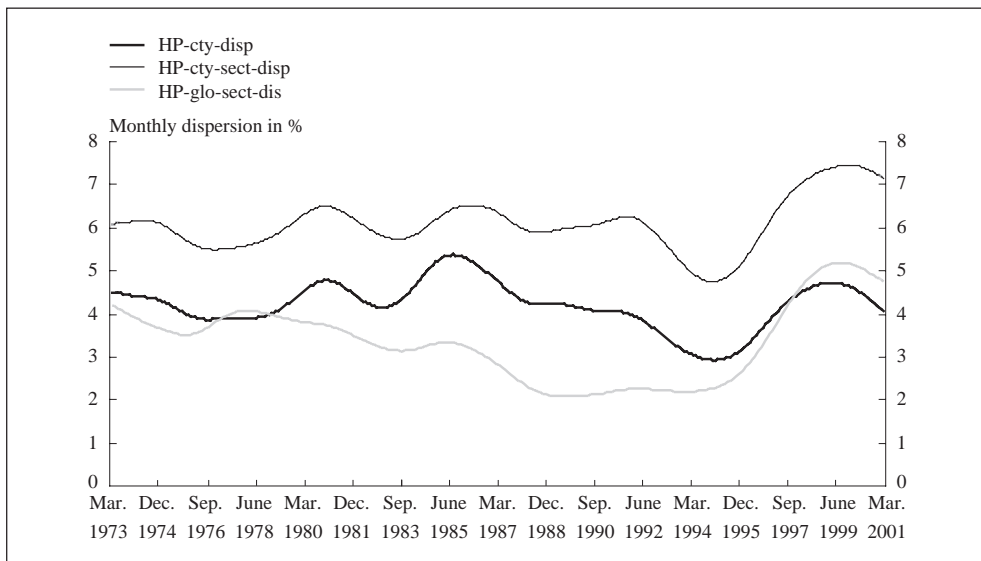
Source: Datastream.

in either direction: the average pre-convergence correlation is 0.407, compared to 0.406 during the convergence period. We take this to mean that what is at work is not operative at company levels but is something affecting the appropriateness (for diversification purposes) of the specific portfolio weights characterizing either country or sector indices.

On average then, there is little room to argue for a shift in the correlation structure when country-sector indices are used. The average correlation, however, masks a particularly interesting picture of the correlation spectrum: at this level of observation, the main regularity appears to be a tendency for bilateral correlations to revert toward the mean. The demonstration is conducted in Appendix D.

To further check the time-series properties of the country-sector indices, we next turn to the dispersion measures again meant to reflect instantaneous correlations. Figure 24 reports a set of interesting facts. First, country-sector indices display the same sort of cycles as observed for the country or the sector indices. Second, at the disaggregated level of country-sector, the most recent period is confirmed as a favorable period for diversification opportunities. Finally, and most importantly, it clearly appears that the diversification possibilities are always better at the country-sector level than at either more aggregated level:

Figure 24: EMU filtered dispersions: country, global sectors and country-sectors



Source: Datastream.

Country-sector portfolios have consistently been *less* correlated than country portfolios or global sector portfolios and the advent of the single currency has no impact on this reality. Now, we are aware that our dispersion measure is not market capitalization weighted, and that as a consequence the greater dispersion reported may overstate the true performance of country-sector portfolios relative to the standard country or sector portfolios. To dispel our doubts, the last step in our inquiry will consist of a more complete mean-variance analysis of the data at hand.

In this final step, our goal is to provide a more complete account of the observed evolutions of equity returns in terms of portfolio efficiency. As mentioned, the discussion in terms of correlation/covariance matrices abstracts from the expected return side of the equation. The reason for this omission is straightforward. While there is some degree of stability in return correlations permitting, with caution, to approximate expected relationships with historical correlations, the same is definitely not true for expected returns. More specifically,

Table 11: Descriptive statistics of portfolios

Panel A: Country index monthly return statistics

(Mean and sigma in %)

Countries	Pre-convergence period			Convergence period		
	Mean	Sigma	Info. ratio	Mean	Sigma	Info. ratio
AUS	0.89	6.74	0.13	0.13	4.85	0.03
BEL	0.38	4.41	0.09	0.56	4.70	0.12
FIN	0.35	8.90	0.04	1.19	10.86	0.11
FRA	0.33	5.08	0.06	0.66	6.00	0.11
GER	0.36	4.61	0.08	0.44	5.91	0.07
IRE	0.56	6.34	0.09	0.90	5.73	0.16
ITA	-0.17	7.06	-0.02	0.56	6.94	0.08
NET	0.50	3.52	0.14	0.69	5.73	0.12
POR	-0.05	4.78	-0.01	0.41	6.24	0.07
SPA	0.42	6.03	0.07	0.78	6.38	0.12
Average	0.36		0.07	0.63		0.10

Panel B: Global sector monthly return statistics

(Mean and sigma in %)

Global sectors	Pre-convergence period			Convergence period		
	Mean	Sigma	Info. ratio	Mean	Sigma	Info. ratio
BASIC	0.37	5.53	0.07	0.50	5.61	0.09
CYCG	0.00	6.22	0.00	0.32	7.00	0.05
CYSE	0.48	5.55	0.09	0.45	6.13	0.07
GENI	0.31	5.68	0.05	0.57	6.20	0.09
ITECH	0.62	6.26	0.10	1.20	11.53	0.10
NCYC	0.67	4.81	0.14	0.98	4.25	0.23
NCYS	0.68	5.43	0.13	0.73	7.97	0.09
RESOR	0.66	4.78	0.14	0.90	5.76	0.16
TOTLF	0.14	4.85	0.03	0.61	6.09	0.10
UTILS	0.76	3.94	0.19	0.54	4.10	0.13
Average	0.47		0.09	0.68		0.11

Source: Datastream.

performing mean-variance optimization exercises under the assumption that average realized returns are truly representative of ex-ante expected returns is very debatable. We will do so, nevertheless, with due caution, with the objective of testing whether at this deeper level of observation we find more support to the important changes in the practice of asset management that we have described and thus can better account for the post-euro reality of equity markets.

We conduct mean-variance optimizations on country, global sector and country-sector indices. As before, we consider two sub-samples, the first starting in May 1987 and ending in December 1994, the second starting in January 1995 and ending in August 2002. Each sub-sample is thus formed of 92 monthly returns. Table 11 reports the sample monthly return statistics for country and global sectors. The country-sector return statistics (77 series) are not shown here for space reasons but are readily available.

A first result is obtained on the basis of the descriptive statistics: global sector indices have been more attractive than country indices in both sub-periods. Indeed, the average global sector return and the information ratio stand at 0.47% and 0.09 respectively, in the pre-convergence compared to 0.36% and 0.07 for country portfolios. These results are not statistically significant, however. They are meant as purely illustrative as they constitute only the first step in the mean-variance analysis. Notice that this result distorts somewhat the message obtained from the correlation comparisons. During the first sub-sample period, the average country correlation stood at 0.56 compared to 0.79 for global sector indices, and the literature maintains (and our analysis confirms) that country factors were dominant during that period. Of course, the average statistics have little to say on portfolio efficiency. We thus provide, in Tables 12, 13 and 14, the results on the optimal minimum variance portfolios and the tangent portfolios for the two sub-periods.

In the optimization, we allow for short selling because the imposition of no short selling restrictions would lead to the exclusion of major EMU countries (France, Germany, etc.) or major sectors. When the optimization is on country-sector indices, implied country weights and implied global sector weights are derived and shown in Appendix B. Focusing first on the country portfolios, one can effectively see that the first period performance of both the minimum variance and the tangent portfolios is better compared to the convergence period.

Table 12: Country mean-variance optimization results

Country	Minimum variance portfolio		Tangent portfolio	
	Pre-convergence	Convergence	Pre-convergence	Convergence
AUS	0.01	0.42	0.69	-1.28
BEL	0.11	0.50	-0.17	0.76
FIN	-0.17	-0.01	-0.37	0.34
FRA	-0.27	0.16	-0.31	1.11
GER	-0.07	0.09	-1.00	-2.06
IRE	-0.26	0.25	-0.10	1.34
ITA	0.09	0.01	-0.28	-0.43
NET	1.25	-0.38	2.64	0.71
POR	0.24	0.15	-0.58	-0.29
SPA	0.07	-0.20	0.48	0.80
Total	1.00	1.00	1.00	1.00
Expected return	0.36	0.35	1.51	2.45
Risk	2.93	4.14	6.00	11.01
Sharpe	0.12	0.08	0.25	0.22

Table 13: Global sector mean-variance optimization results

Sector	Minimum variance portfolio		Tangent portfolio	
	Pre-convergence	Convergence	Pre-convergence	Convergence
BASIC	-0.04	0.23	0.16	-0.06
CYCG	-0.06	-0.21	-0.84	-0.54
CYSE	-0.60	0.21	-0.71	-0.06
GENI	0.05	-0.18	-0.43	-0.24
ITECH	0.06	-0.12	0.51	0.19
NCYC	0.36	0.56	1.29	1.47
NCYS	-0.18	0.15	0.92	0.19
RESOR	0.35	0.20	0.32	0.49
TOTLF	0.21	-0.21	-1.47	-0.44
UTILS	0.84	0.37	1.26	0.02
Total	1.00	1.00	1.00	1.00
Expected Return	0.77	0.80	2.35	1.62
Risk	3.39	3.29	5.91	4.66
Sharpe	0.23	0.25	0.40	0.35

Source: Datastream.

The picture is different for global sector portfolios. The performance of the global sector minimum variance portfolio has improved during the convergence period but the opposite is true for the tangent portfolio. Of most interest is that the Sharpe ratio of the optimal portfolios composed on the basis of sector indices is always superior to the Sharpe ratio of the optimal portfolios made of country indices. Repeating the warning signals already issued and thus proceeding with utmost caution, we conclude nevertheless that standard mean-variance analysis thus leads us to qualify the assessment made on the basis of covariances or factor analysis and provides stronger support to the changing asset allocation paradigm: yes, country indices have for long constituted a better basis for asset allocation, the reversal has occurred only very recently and it is not overpowering. If however one takes on board the message from average returns, there is a distinct possibility that, for a much longer period, portfolio weights implicit in sector indices have been more conducive to portfolio performance than the portfolio weights implicit in country indices. This reality, possibly not fully anticipated but learned about from experience, may thus explain the change in paradigm. And the euro may have been the facilitator or the catalyst, the one-off event that has made it possible or, at least, easier to take the new reality into account.

The plot thickens, however, if one now considers the possibility of investing at a more disaggregated index level by forming portfolios of country-sector indices. The Sharpe ratios of both the minimum variance and the tangent portfolios are an order of magnitude higher than those of the previously formed optimal portfolios. Note here that the data prevent us

Table 14: Country-sector mean-variance optimization results

	MV portfolio	Tangent portfolio
Expected return	0.86	4.32
Risk	0.69	1.56
Sharpe	1.23	2.77

Source: Datastream.

from optimizing for the first part of the sample period, as for some country-sector indices the data history is too short.

Our results are not surprising. Standard portfolio analysis cannot justify imposing restrictions on portfolio weights such as those enforced when one considers either the country indices or sector indices as the building blocks of asset allocation. In this sense, asset managers should be doing a simultaneous asset allocation along both country and sector dimensions and the euro has nothing to add to this. These results are fully in accord with those provided by the spanning literature. Spanning tests ask the following basic question: what happens to the efficient frontier constructed on the basis of country portfolios when industry portfolios are added to the investment universe? And reciprocally? The answer, which is consistent with earlier evidence, is that the allocation is improved by taking both views (Ehling and Ramos, (2002)): countries add to sectors and sectors add to countries. Ramos (2002) provides the analytics. She constructs a two-country, two-industry and four-asset model in which two sets of portfolios can be built: constrained portfolios which can only invest in country or industry indices and unconstrained portfolios which can invest in both indices. The theoretical results support the empirical results showing that the performance of the constrained portfolios is inferior to the performance of their unconstrained counterparts, or else, that the performance of unconstrained portfolios is altered if one or more components are excluded from the optimization. This is a logical outcome since the primitive assets' returns are assumed to be generated by a two-factor model, where the factors represent country and industry dimensions. Since almost all empirical studies have found both country and industry factors to be present in European stock returns, it follows that a two-dimensional asset allocation approach is more appropriate. These results are also in line with those of Gérard, Hillion and Roon (2002) who obtain that "in the absence of short sales restrictions, international portfolios based on either countries, industries, or ICAPM portfolios are always inefficient relative to each other".

In sum, within the standard top-down paradigm, we do provide support to the view that, despite a long and rich literature asserting the superiority of country factors in variance decomposition exercises, the euro area reality has been altered possibly as a result of economic and financial integration. Taking account of average returns, and not only of correlations, and using the lens of portfolio optimization clearly strengthen the rationale for the paradigm change.<sup>6</sup>

Yet, full optimization also confirms another strand of the literature arguing that the cost of the standard aggregated approach may well be substantial in terms of portfolio performance. Viewed in this perspective the change in asset allocation paradigm is entirely puzzling. To make sense of it, one may try to argue that a two-step allocation is costlier than a one-step strategy. Small players could possibly afford only one step. Viewed from the spanning test methodology à la Ramos, these findings suggest that the changes that have taken place imply the one-step should now be industry. That is, the marginal diversification gain of adding an extra layer of optimization is smaller when the first step is industry and the extra-layer is country than when the first step is country and the extra-layer is industry.

While these costs may be understood when placed in the larger context of the costs of doing active portfolio management in a multi-industry international setting, they are hard to rationalize in the context of passive strategies. The growth of indexing and the development

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<sup>6</sup> Gérard, Hillion and Roon (2002) however point out that short sales restrictions may be more damaging for industry based portfolios than for country based portfolios and that when such restrictions are implemented the superiority of industry portfolios in terms of Sharpe ratio may well disappear.

of ETF's may be highly relevant in this context and augur of significant performance improvements for European investors.

## 5. Conclusions: Winners, Losers, and the Challenges Ahead

Our discussion has made it clear that the euro together with the accompanying structural changes described in the introduction has not been the minor event that some had predicted. In this concluding section, we look at the winners and the losers of the recent changes and underline some of the outstanding challenges. We take successively the viewpoint of the governments, the firms and the consumer-investors of the euro area.

### 5.1 Governments

The evolution of government bond markets in the euro area has been spectacular. Euro-area governments are now able to finance themselves at rates that are both lower and more stable than in the period preceding the euro. While the macroeconomic conditions may change and financial integration does not mean that interest rates will remain low, theory suggests that lower spreads relative to the benchmark and lower interest rate volatility are structural improvements on which governments may count in the future. This implies that for most public authorities refinancing conditions have permanently improved.

The key remaining issue is the question of whether a single public debt market for the euro area is within reach. As discussed in Section 3.4, the current fragmentation is partly the result of market microstructure considerations for which further measures of financial integration are the appropriate remedy; but there is also the possibility that it is the result of coordination on the bad equilibrium in a multiple equilibria situation, in which case it is less clear which set of measures would be appropriate and whether they would be successful. In other words, it is quite possible that, short of the establishment of a single issuing agency for public securities in the euro area, the benefits of a fully integrated market will not obtain. The current situation is not without benefits. Competition among European Treasuries ensures that the needs of investors are scrutinized and met with diligence. But what can be seen as a failure of financial integration has also a cost, that one may judge to be unnecessary. If one sets at 20 basis points the price of this failure for all euro-area public treasuries except the German, the total cost can be estimated at €5 billion per year.

### 5.2 Firms

We have seen in Section 4.4.1 that one pre-condition for the equity risk premium to decline as a result of integration was met. This provides prima facie evidence that the cost of equity capital for European firms will be lower, *ceteris paribus*, in an integrated euro area. Whether such a decrease has effectively materialized and whether it can effectively be measured is an open question. Indeed, while these effects are potentially of first-order importance in the long run, it is not clear that they are detectable over the time frame we are talking about and in the context of the progressive changes taking place in Europe. In the more dramatic case of the opening of financial markets of emerging economies, Stulz (1999) finds it difficult to detect strong effects of liberalization on the cost of capital. He argues interestingly that the existence of the home bias may well be the factor limiting the extent of the cost of capital decrease in the situations he analyzes. Yet Hardouvelis et al. (2001) provide a bullish empirical

assessment of how the single currency has affected the cost of capital in the euro-area. These authors use a standard CAPM with EMU and local factors and show that EMU factors have become more important than local ones. Since the covariances of firms with EMU factors are generally lower than with local factors, they conclude that the cost of capital must have decreased. They also show that the cost of capital for firms within the same sector has converged across countries. We conjecture that the convergence of risk-free rates, displayed in Figure 1, may be one dominant factor in this assessment.

The importance of microstructure considerations in the case of highly homogeneous assets such as public bonds suggests similar considerations are also at work, probably with more force, in the case of equities. There are strong reasons to believe that the current fragmentation of stock exchanges in Europe implies that firms with similar characteristics are priced differently and, as a consequence, experience a cost of equity capital that varies. Such differences introduce costly distortion in the allocation of investments.

### ***5.3 Consumers and Investors***

As taxpayers, consumers do benefit from the more favorable circumstances under which European governments are able to finance their expenditures. Debt markets are zero sum, however, and if governments pay less on the securities they issue, the holders of these securities also receive less. These are likely to be the more risk averse investors who hold a disproportionate share of government securities in their portfolios. They are also the future retirees whose pension funds produce smaller returns.

The decrease in firms' cost of capital means that more investment projects pass the hurdle rate and that in particular riskier, high expected return projects can be financed more advantageously. One expects this to be favorable for investment and output and for economic growth. This is not a zero-sum game and everyone will benefit from these developments, among others, the holders of claims on non-capitalized pension schemes.

As we have noted before, these changes in the reward to risk taking also have potentially important implications for the industrial structure of an economy as some firms may see an increase in their cost of financing while most others see a decrease. Activities previously valued for their contribution to economic diversification may see their premium decline or disappear. Such reallocations of activities are often painful implying job creations but also job destructions. For individual workers, the transition may be hard, to the point where some of the changes, although welcome in the long run, will be opposed in the political arena. Europe is not foreign to this reality.

For private investors, financial integration represents an improvement in diversification opportunities. Facilitated cross-border investments make it less costly to achieve international diversification. While there are clear signs of this happening, it still is the case that European investors remain home biased and that further measures permitting to decrease the cost of cross-border investments are called for. One of the most obvious positive changes brought about by the euro was the automatic lifting of currency matching rules for institutional investors. Important gains in diversification, ultimately reaped by investors and consumers, are expected from this change and the evidence confirms that the new opportunities are being exploited. Of course the benefits of these changes have to be measured in the long run abstracting from the current state of equity markets.

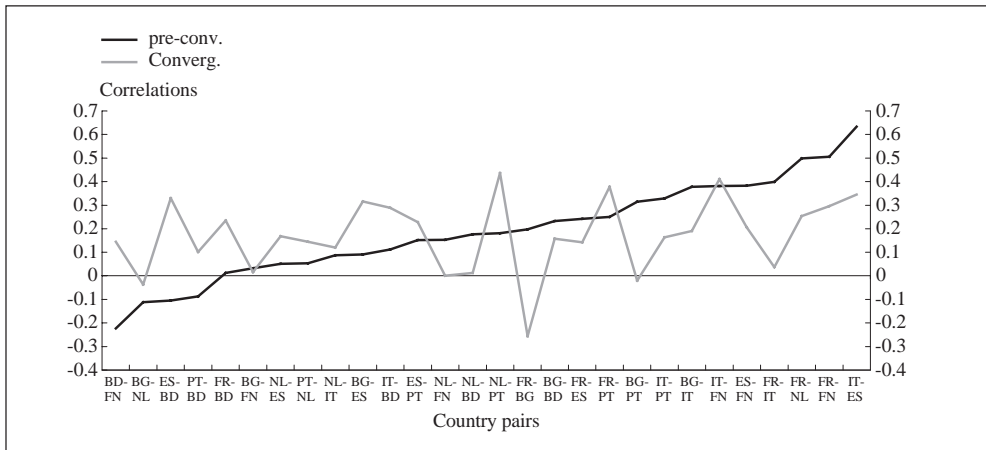
We have spent time trying to understand the reasons for the change in the asset allocation paradigm. This change may have some indirect effects on the home bias. The optimists will argue that the new sectoral approach to asset allocation is a strong antidote to the home bias.

This is because global sector indices are by definition impervious to national considerations and the reliance on these indices at the first stage of the asset allocation process will automatically force investors towards a more international outlook. The pessimists will argue on the contrary that once the optimal sector allocation has been defined, it will be natural for investors to try to fill in the grid with home stocks belonging to the required industries, something that will be possible in a majority of cases. Of course, doing so systematically would lead to going further away from an optimal geographical diversification.

Portfolio theory has been one of the areas of the economics where academics have been successful at taking a normative stance. With the hope that this success will continue, a review of the facts and the theories cannot be concluded without questioning the appropriateness of current asset allocation practices. There is probably no role for policy here. Yet it may well be the domain under review where welfare gains would be most substantial. There are clear indications that the step-by-step top-down asset allocation process commonly adopted forgoes major diversification gains and, as argued above, there is no guarantee that the current paradigm change will affect this reality. To the extent that this restricted approach is the result of a cost optimization procedure and that the size of asset management units is at issue, cross-border integration of asset managers may be the way forward. More affordable is the development in Europe of passive investment, a move that should be facilitated by the growth of new instruments such as Exchange Traded Funds.

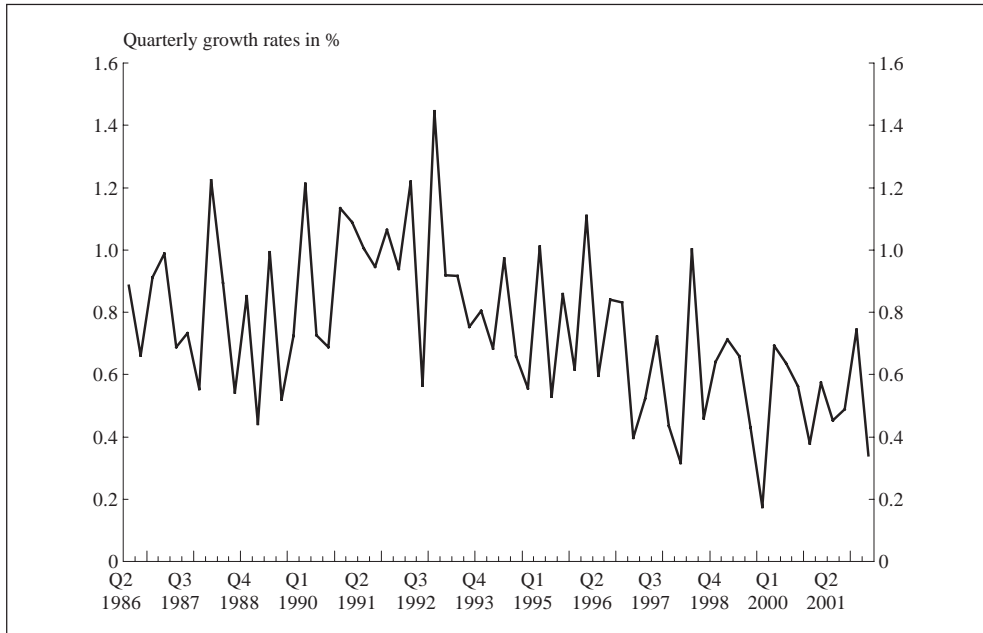
Now, the definitive measure of the convergence of pricing kernels and of the relevance of financial integration for all consumer-investors would be an increase in the correlation of consumptions! Figure 25 displays pairwise country correlations of consumption for the euro-area for two periods defined as preceding convergence – 1986-1994, and during convergence – 1995 and 2002. The pattern is dominated by a tendency of correlations to return toward the mean, that is low correlations in the first period are typically followed by higher correlations in the second and conversely. In Figure 26, we resort once again to the concept of cross-sectional dispersion to have a better perspective on this matter. Here, it appears rather clearly that the dispersion of consumption growth rates exhibits a downward trend at least since the

Figure 25: Evolution of country pair correlations (consumption growth rate) – before and during convergence



Source: Datastream.

Figure 26: Quarterly consumption growth rate dispersions



Source: Datastream.

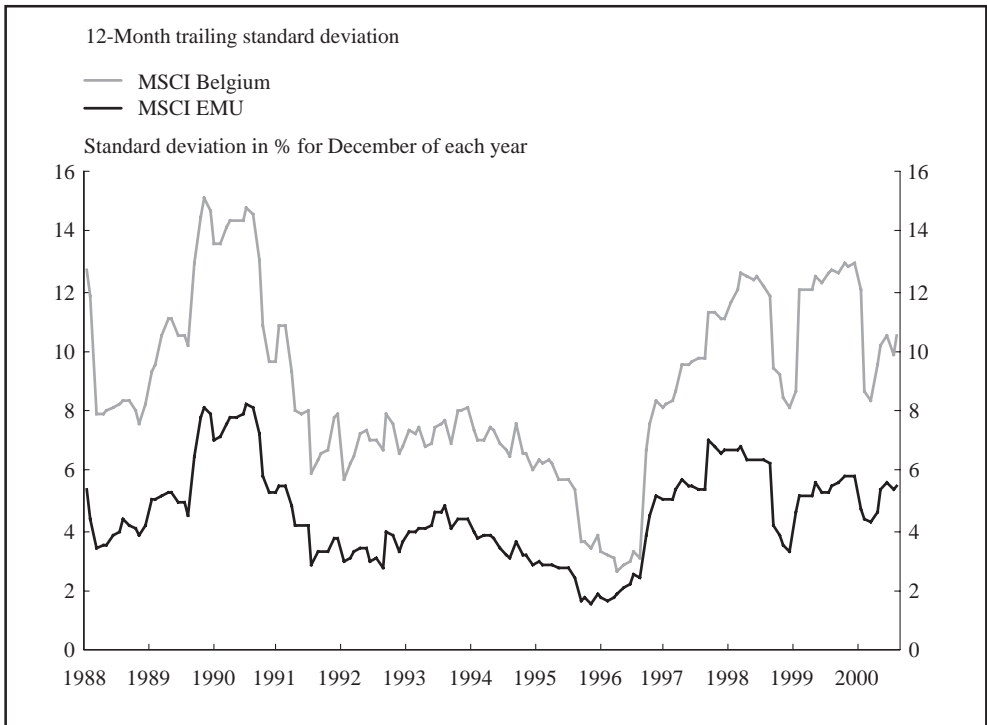
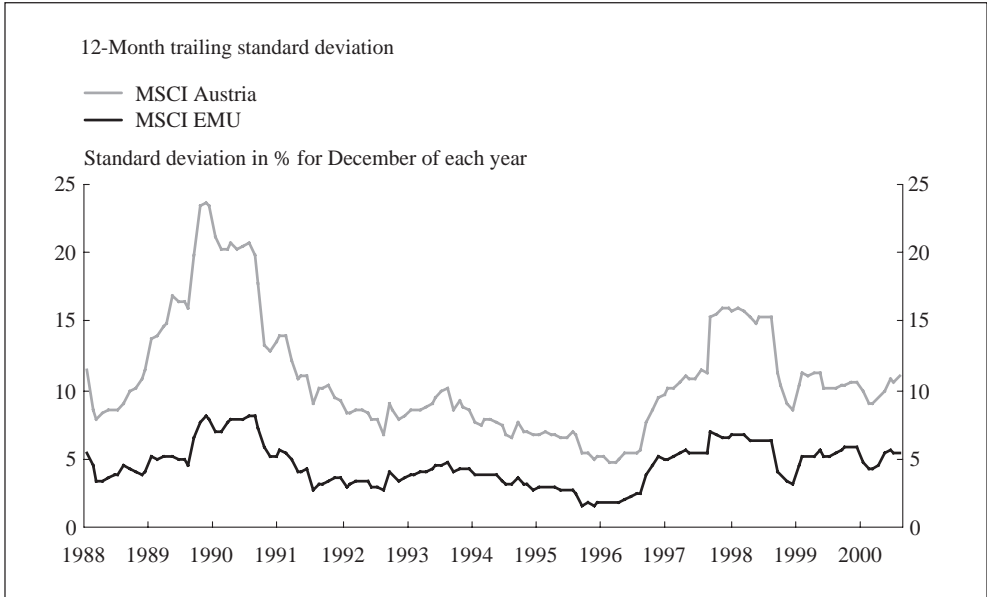
early nineties. That is, consumption growth rates are increasingly correlated in the euro-area. The average dispersion in the first part of the sample is 0.87 while it falls to 0.62 in the second part. At first sight, this is a welcome support to the idea of the convergence of pricing kernels. We have to remember, however, that a similar pattern has been found for the growth rates of GDP and the observations on consumption may simply be the mechanical consequence of the increased synchronization of output. In addition, the correlations between consumption growth rates in the euro area remain smaller than the correlation of GDP growth rates suggesting that risk sharing opportunities are far from being fully exploited. Complementary evidence is provided by Adam et al. (2002) who reject the hypothesis that consumption growth rates are unaffected by idiosyncratic changes in GDP growth rates as would be the case under perfect risk sharing among members of the euro area. European policy makers may however take comfort from the fact that, by this very demanding measure of integration, the US is not an integrated financial area either.

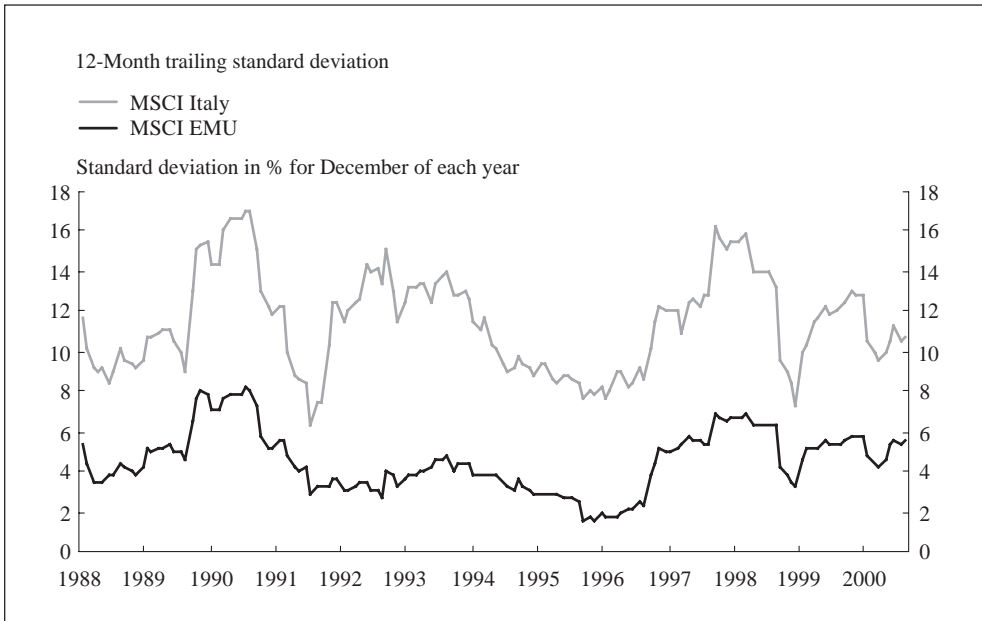
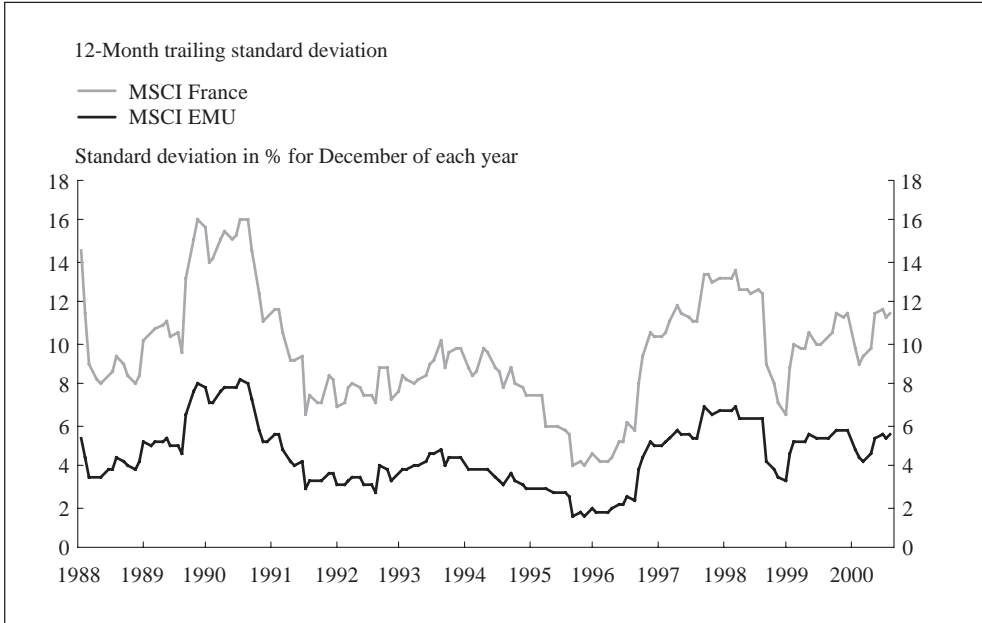
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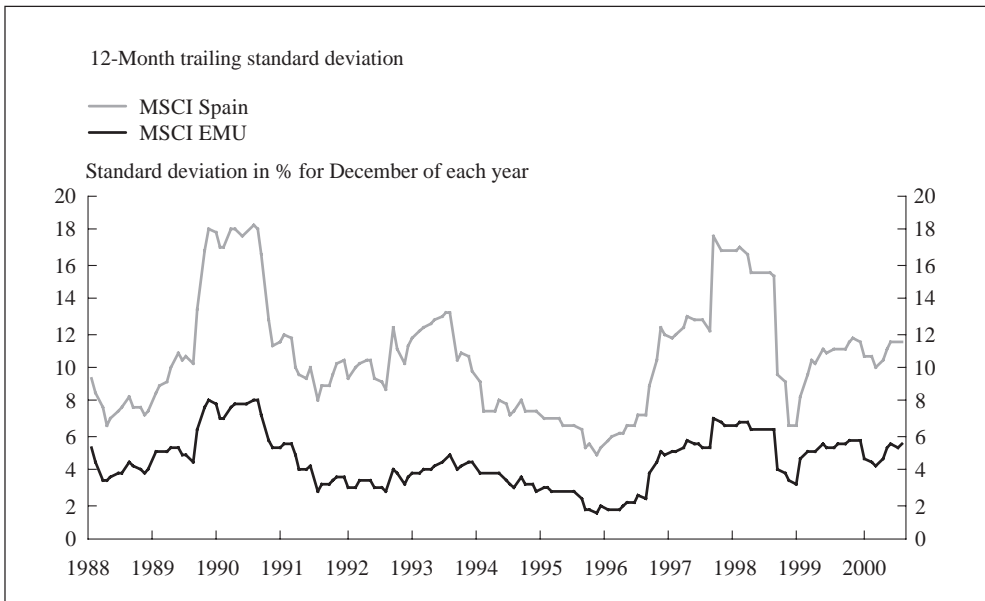
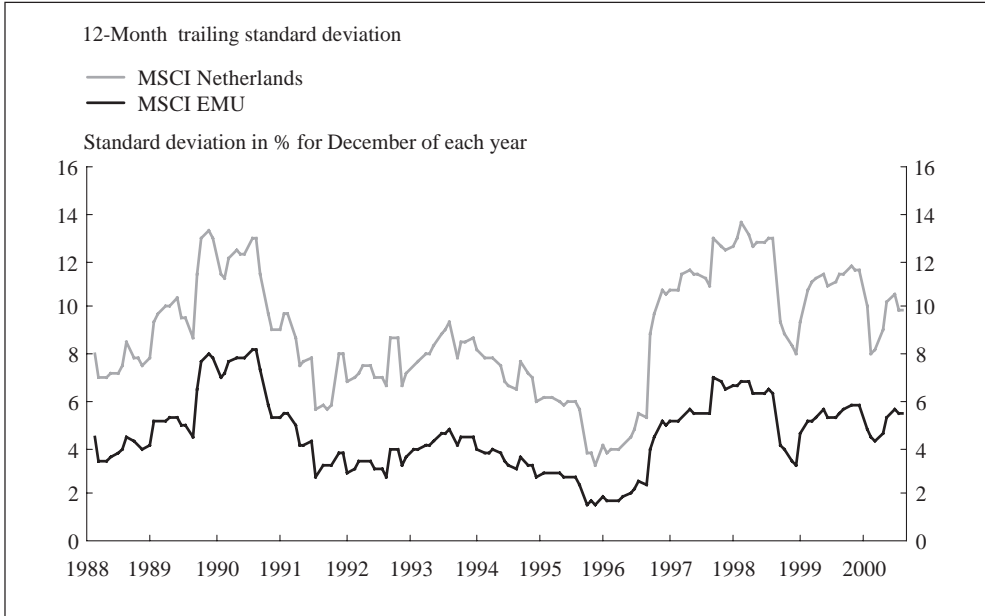
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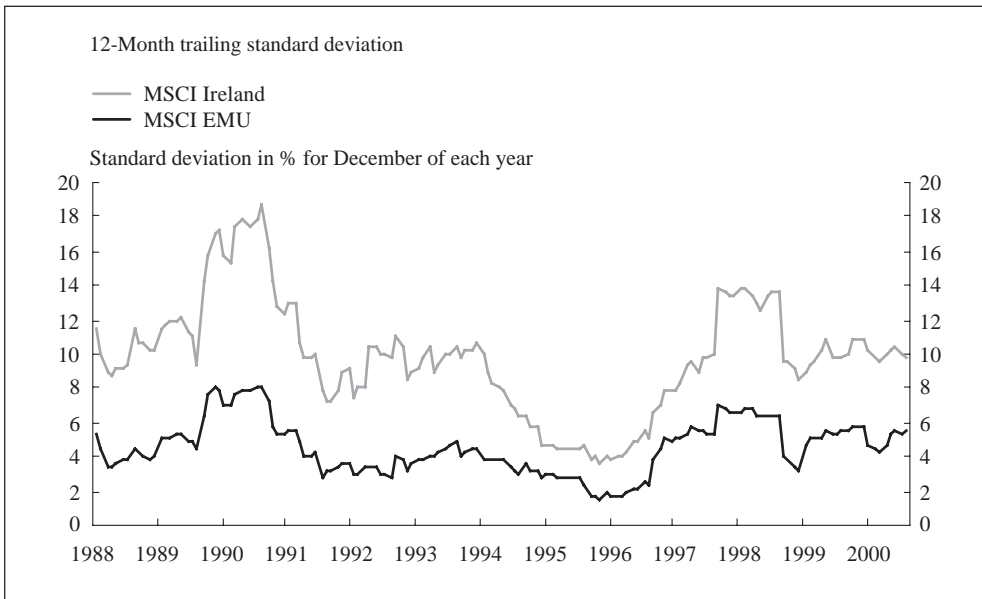
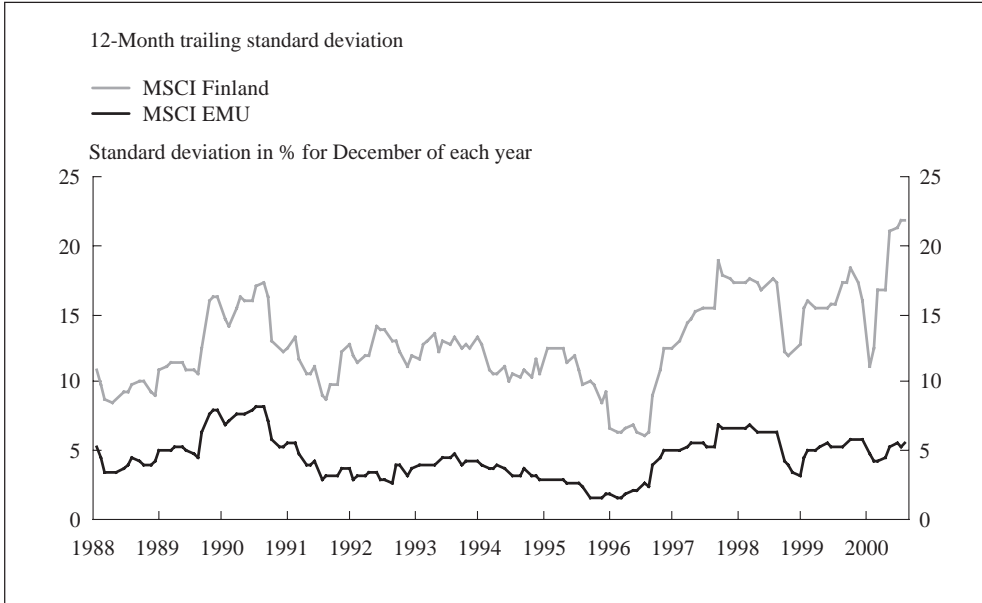
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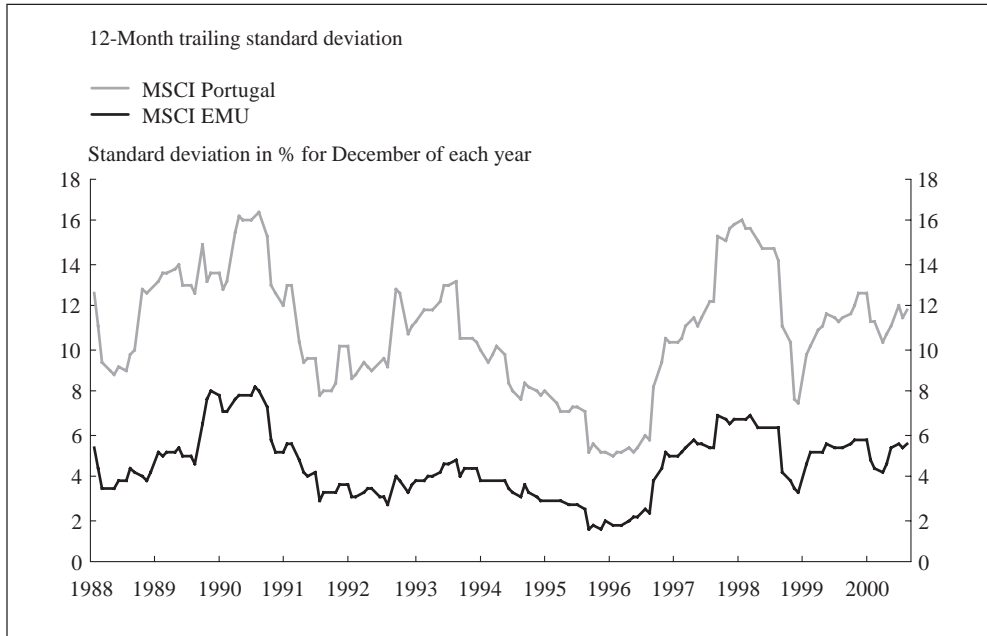
**Appendix A: Standard deviation of national market indices versus MSCI EMU**











### Appendix B: Condition for a non monotonous relation between covariances of sector and country indices and the variance decomposition

We have stated that even if  $\text{var } \varepsilon < \text{var } \eta$  – the country factor explains a smaller proportion of the variance of returns – we could have, under certain circumstances,  $\text{cov}(S_a, S_b) > \text{cov}(C_A, C_B)$  – that is, country portfolios remain a better basis for diversification. The condition for this to be the case is

$$\begin{aligned} & \text{var } \varepsilon \left( \sum_{i \in A} \alpha_i \sum_{j \in B} \alpha_j + \sum_{i \in A} \beta_i \sum_{j \in B} \beta_j \right) + \text{var } \eta \left( \sum_{i \in A} \delta_i \sum_{j \in B} \delta_j + \sum_{i \in A} \gamma_i \sum_{j \in B} \gamma_j \right) \\ & < \text{var } \varepsilon \left( \sum_{i \in a} \alpha_i \sum_{j \in b} \alpha_j + \sum_{i \in a} \beta_i \sum_{j \in b} \beta_j \right) + \text{var } \eta \left( \sum_{i \in a} \delta_i \sum_{j \in b} \delta_j + \sum_{i \in a} \gamma_i \sum_{j \in b} \gamma_j \right), \text{ or,} \\ & \text{var } \varepsilon \left( \sum_{i \in A} \alpha_i \sum_{j \in B} \alpha_j + \sum_{i \in A} \beta_i \sum_{j \in B} \beta_j - \sum_{i \in a} \alpha_i \sum_{j \in b} \alpha_j - \sum_{i \in a} \beta_i \sum_{j \in b} \beta_j \right) \\ & < \text{var } \eta \left( \sum_{i \in a} \delta_i \sum_{j \in b} \delta_j + \sum_{i \in a} \gamma_i \sum_{j \in b} \gamma_j - \sum_{i \in A} \delta_i \sum_{j \in B} \delta_j - \sum_{i \in A} \gamma_i \sum_{j \in B} \gamma_j \right) \end{aligned}$$

**Appendix C: Country and global sector raw dispersions**

Figure A: EMU country index return dispersions

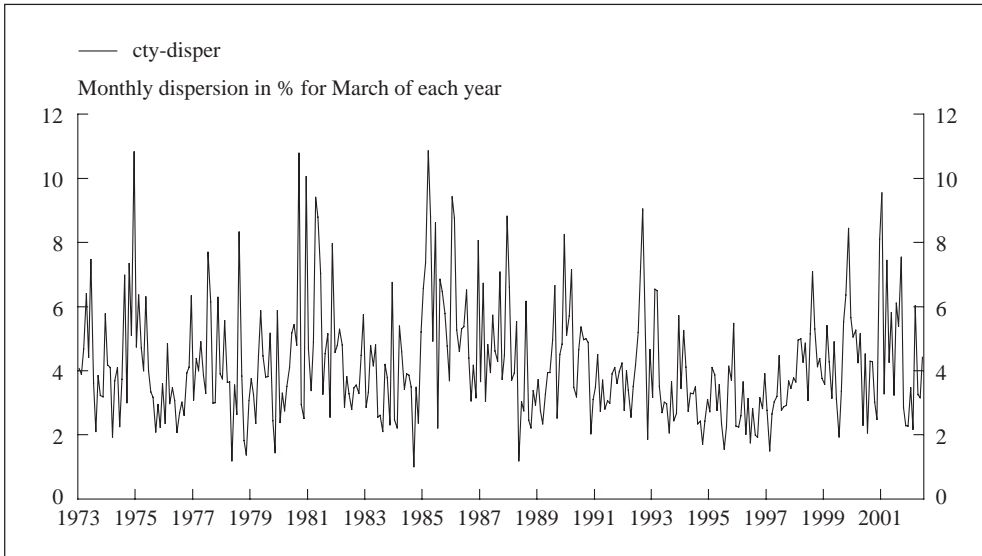
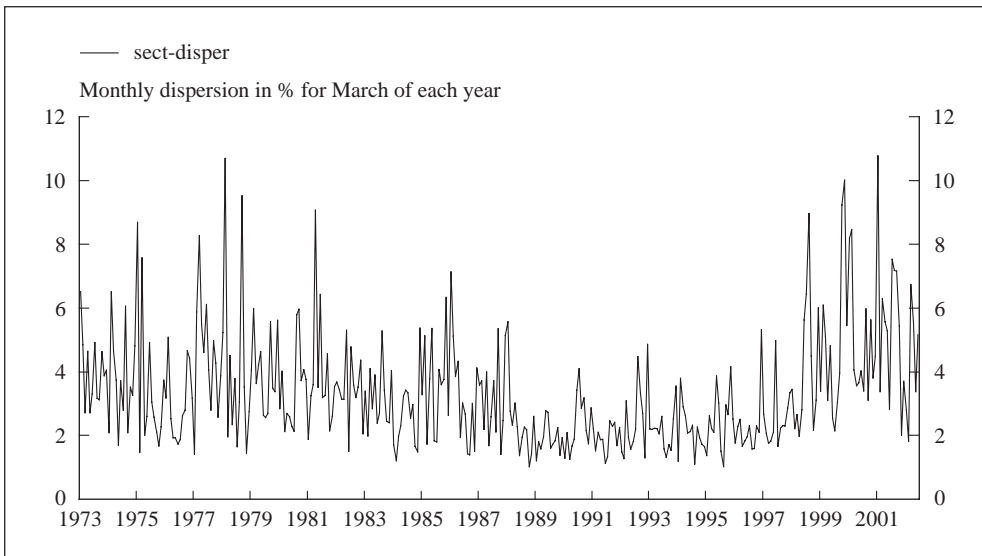


Figure B: Global 10 EMU sector return dispersions



### Appendix D: Mean reverting property of country-sector indices correlation

Here we show the correlations for three groups of country-sector indices. Figure C shows the correlations for the 500 country-sector pairs with the lowest correlations in the pre-convergence period. For this panel, the correlations during the convergence period have increased notably. Figure D focuses on the middle 500 country-sector pairs (thus, with middle pre-convergence correlations) and shows that the convergence period correlations have gone in either direction. Finally, Figure E is concerned with the 500 country-sector pairs with the highest correlations pre-convergence, and reveals that post-convergence correlations have decreased there. The conclusion is clear: at this level of observation the main regularity appears to be a tendency for bilateral correlations to revert toward the mean.

Figure C: Country sector correlations: pre-convergence versus convergence periods

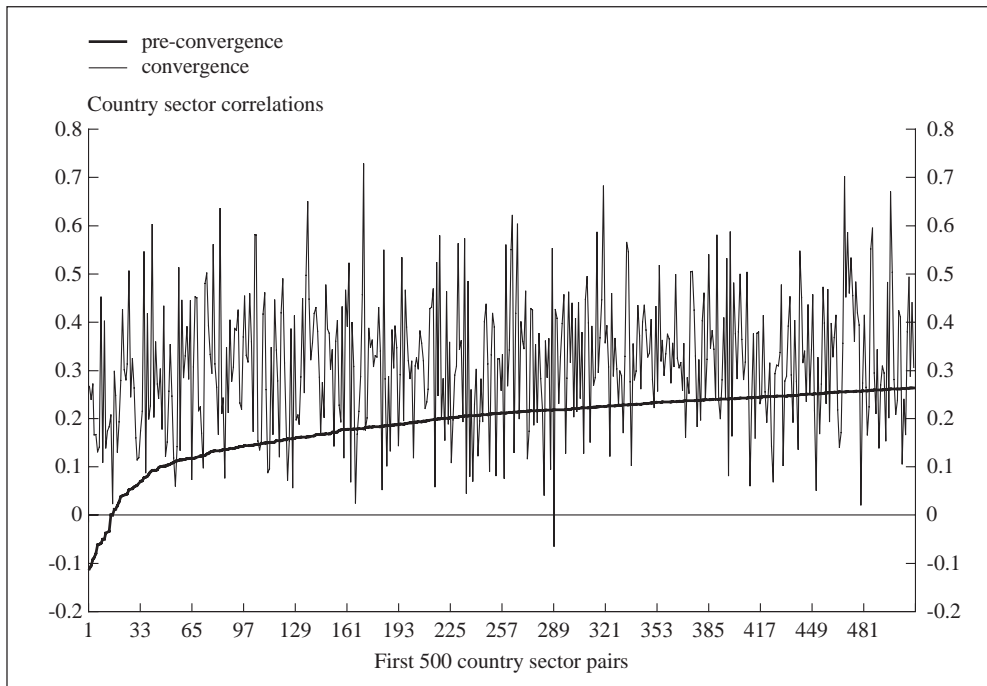


Figure D: Country sector correlations: pre-convergence versus convergence periods

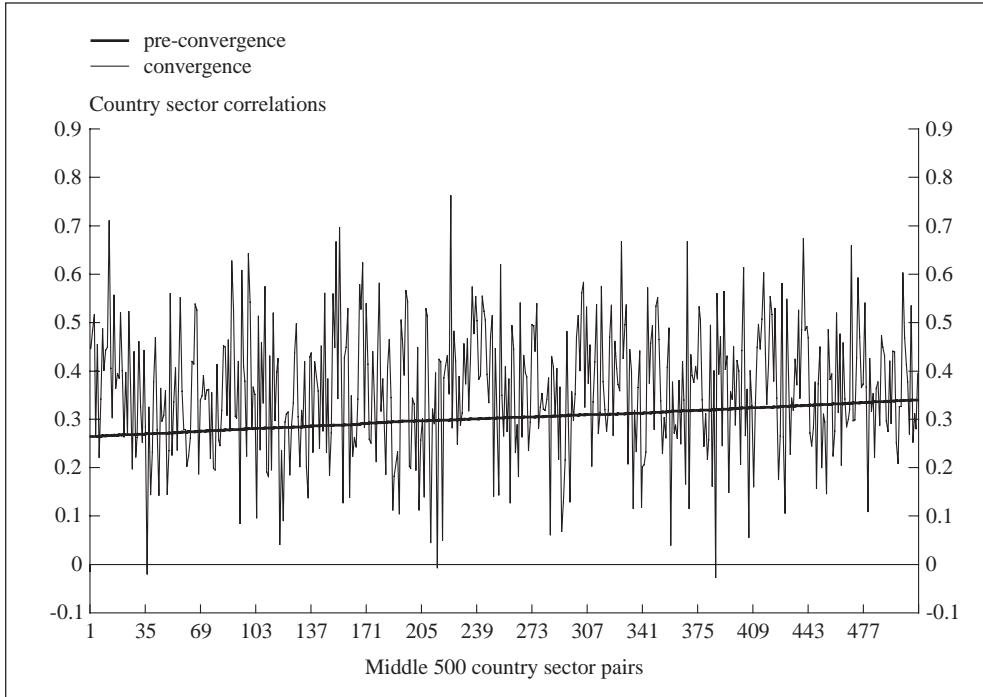
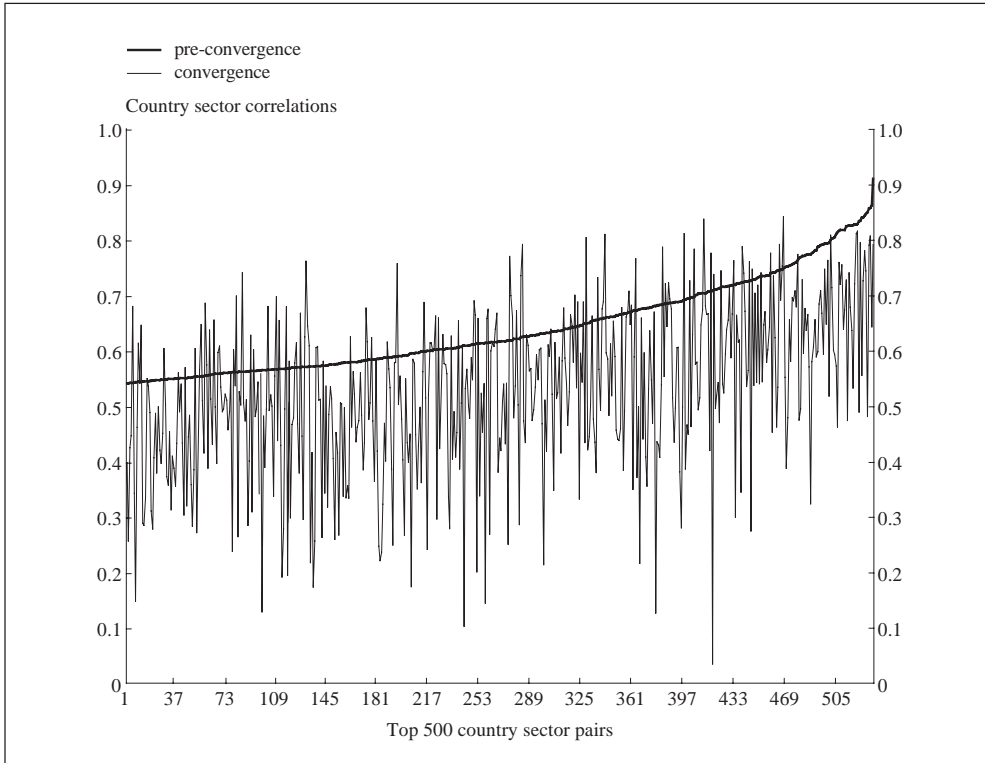


Figure E: Country sector correlations: pre-convergence versus convergence periods



**Appendix E: Implied Portfolio Weights in the Mean-Variance Optimization**

## Implied country weights

	MV portfolio	Tangent portfolio
AUS	0.31	-0.49
BEL	-0.36	0.31
FIN	0.26	-0.53
FRA	0.15	-0.23
GER	0.50	0.62
IRE	-0.03	-0.21
ITA	0.18	-0.15
NET	-0.13	1.16
POR	0.02	-0.28
SPA	0.10	0.80
Total	1.00	1.00

## Implied country weights

	MV portfolio	Tangent portfolio
BASIC	0.06	-0.66
CYCG	-0.33	-0.67
CYSE	0.60	-0.10
GENI	-0.04	0.17
ITECH	-0.28	-0.45
NCYC	0.39	0.02
NCYS	0.14	0.30
RESOR	0.00	0.77
TOTLF	0.18	1.10
UTILS	0.29	0.52
Total	1.00	1.00



# **Development of the European Bond Markets**

Bruce N. Carnegie-Brown, Matt King

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## 1. Introduction

European bond markets are currently undergoing enormous structural change. The arrival of EMU, the ageing of Europe's population, and the massive growth in the use of derivatives are all having an impact. Yet the market's development has not proceeded exactly as we – and most other market players – had anticipated. Understanding why not is probably the key to understanding how the market will develop in future. To facilitate our analysis, we will review the development of the market from two perspectives: the issuer dimension and the investor dimension. We will then draw some conclusions about what this means for the future growth of the European bond markets.

## 2. The Issuer Dimension

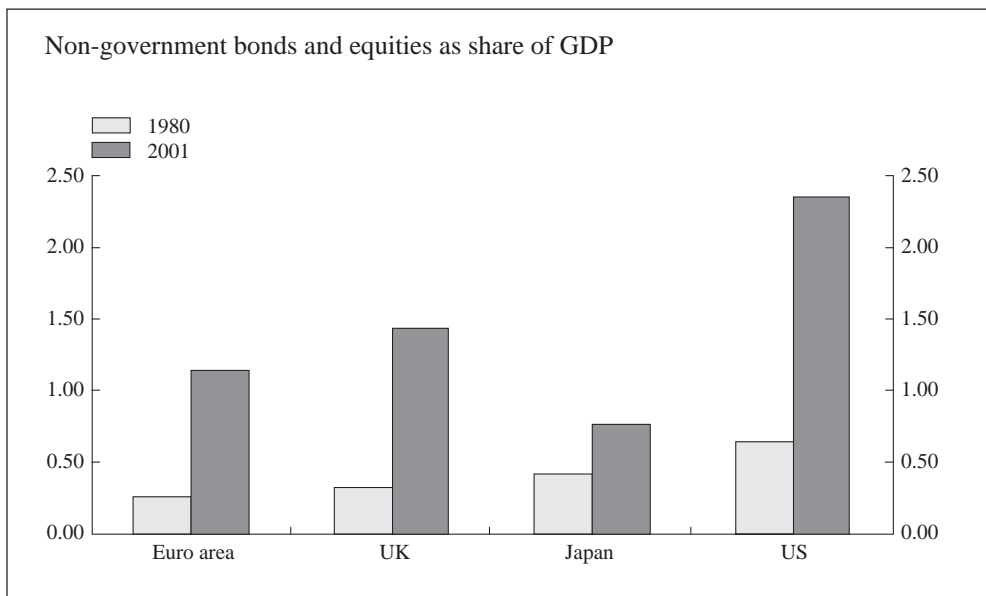
### 2.1 *The trend towards securitisation*

A few years ago, the potential of the Euro area seemed huge.

Liberalisation and the arrival of EMU would allow borrowers to tap a much larger pool of capital, both via equity and credit markets. Comparisons with the US suggested that growth in “securitisation” – the disintermediation of banks from the lending process in place of a direct link with “end” investors such as pension funds and insurance companies – could be enormous. This was expected to lead to a boom in credit and equity issuance (see Figure 1).

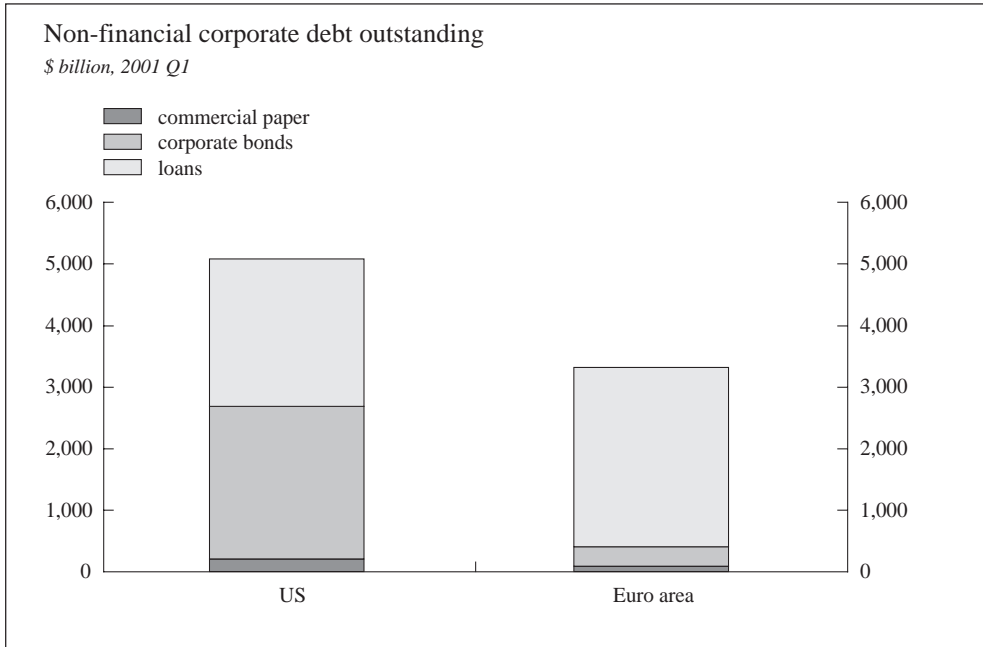
The statistics on loan versus bond lending in the euro area certainly suggested the potential for such a boom. ECB statistics show that 87% of European corporates' borrowing was still being done via loans in 2001 compared with around 50% in the US. Equalizing that gap – without even allowing for any growth – would have led to \$1 trillion in new bond issuance (see Figure 2).

Figure 1: Securitization in different markets



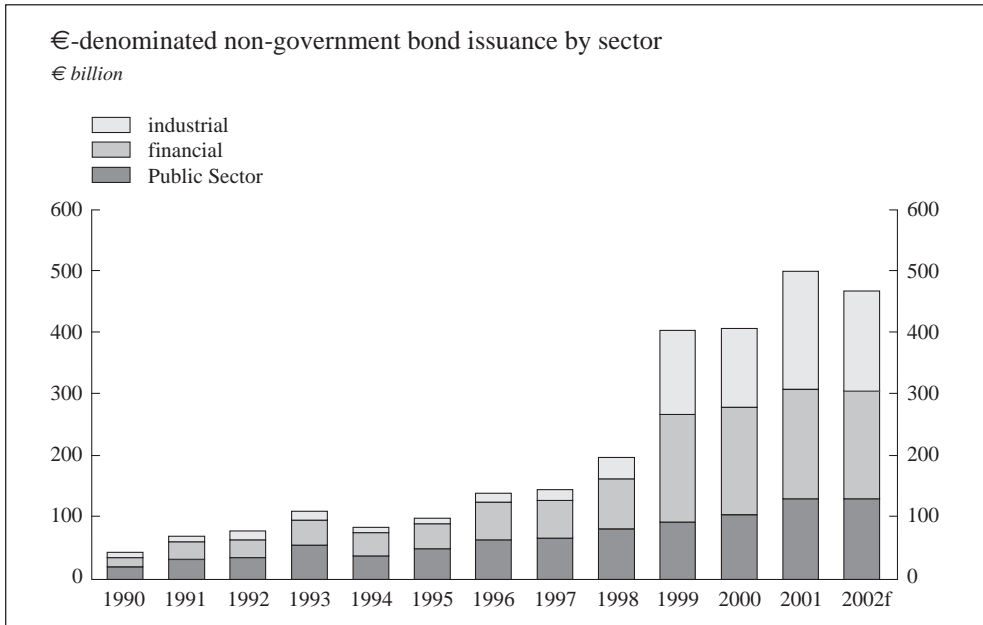
Source: OECD.

Figure 2: Borrowing in Europe versus US



Source: Bondware, loanware.

Figure 3: Corporate bond supply



Source: Bondware.

To begin with, that seemed indeed to be the pattern we were observing in the market. €-denominated bond issuance has grown enormously since 1998, with the lion's share coming from corporate issuance, which has more than tripled (see Figure 3).

## 2.2 Growth in M&A and Loans

But closer inspection suggests that structural changes encouraged by EMU were not the driving factor.

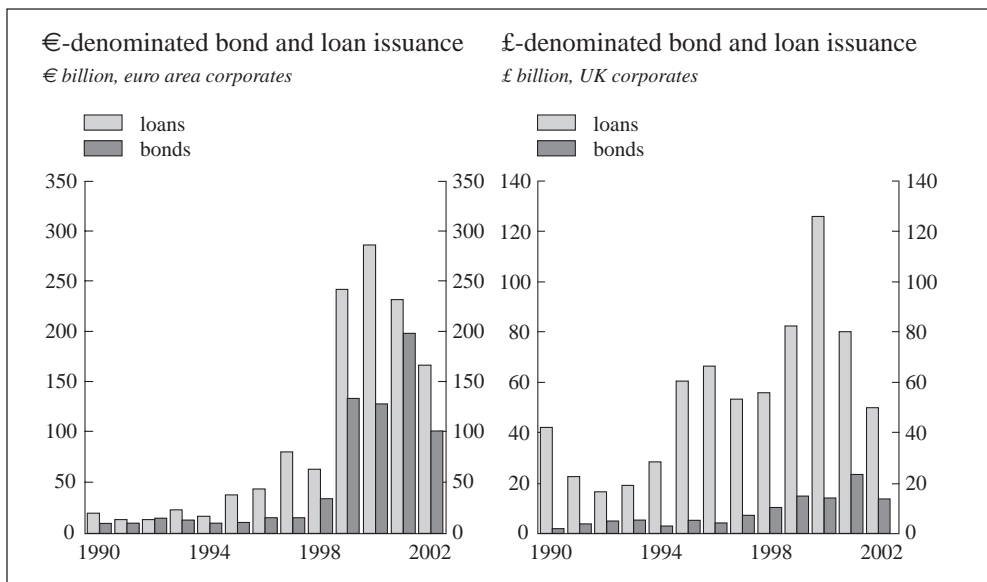
As Figure 4 shows, loan issuance also boomed, at around the same time. Yet no one had expected total lending to increase as a result of EMU. So too did corporate borrowing in the United Kingdom, both via loans and via bonds. And the United Kingdom, as an EMU non-participant, was definitely not supposed to be benefiting from freer access to €-denominated capital.

Closer inspection of the numbers suggests that the real cause was not EMU at all, but mergers and acquisitions ("M&A"). ECB statistics (see Figure 5) show that the growth in corporate borrowing in 1999-2000 went not on capital investment but on "acquisition of financial assets". Specifically, it went on buying equities of other companies: M&A.

The close correlation between the amount of loan issuance and the amount of M&A supports this conclusion. Even if lending volumes held up better than M&A in 2001 and 2002, this can probably be attributed to refinancing activity. (2002 numbers, both for M&A and loan issuance, are to 31 August 2002.)

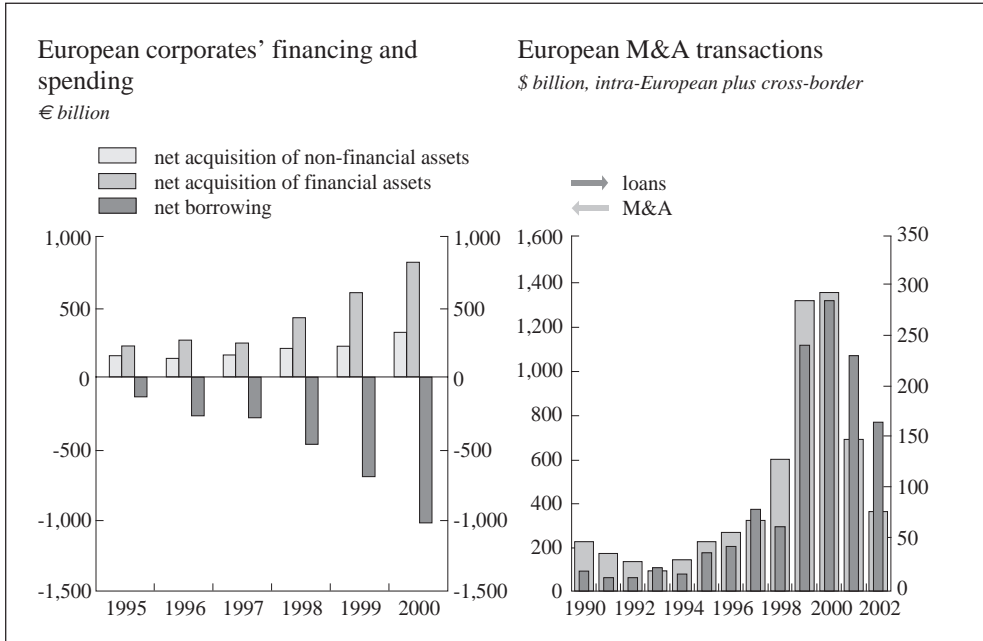
And while the argument probably can be made that there is scope for further consolidation of European industry, through M&A activity, in the short term most companies seem to be retrenching.

Figure 4: Loan issuance



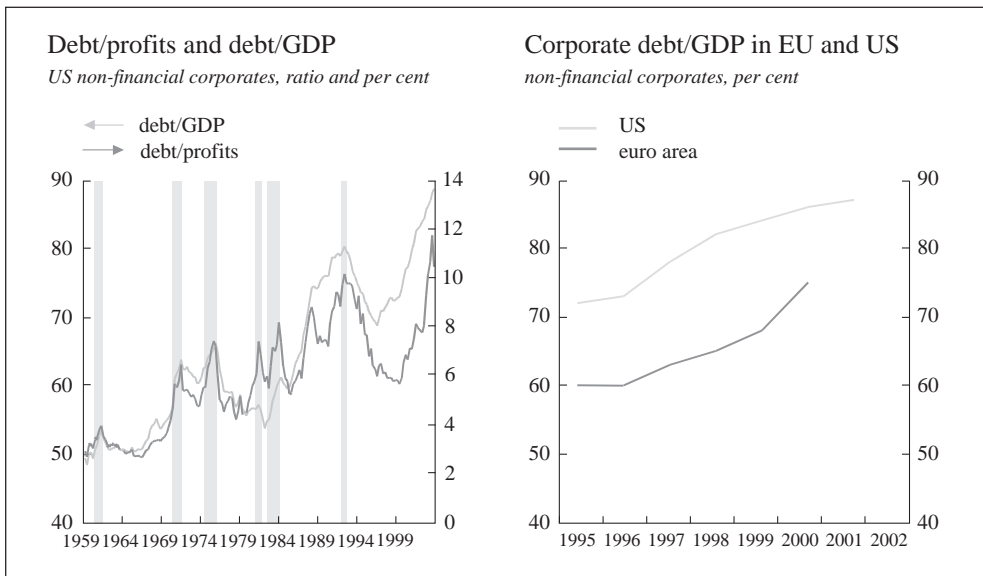
Source: Bondware, Loanware.

Figure 5: The driver of the boom



Source: ECB Monthly Bulletin, Loanware, Thomson Financial.

Figure 6: The outlook for issuance



Source: US Federal Reserve Flow of Funds, ECB.

### 2.3 Deleveraging

In Europe, as in the US, retrenchment leads to deleveraging. This happens naturally at the end of every cycle, when corporates exit a recession, find themselves uncertain of future profit growth and saddled with too much debt. The retrenchment in the euro area – and resultant decline in bond issuance – will not be so sharp as in the United States because corporate debt/GDP is lower. Nevertheless the direction is likely to be the same.

Evidence for this is not hard to find, at least on an anecdotal basis. Company after company is now taking action to reduce their debt, whether through asset disposals, foregoing dividends or going so far as to raise equity.

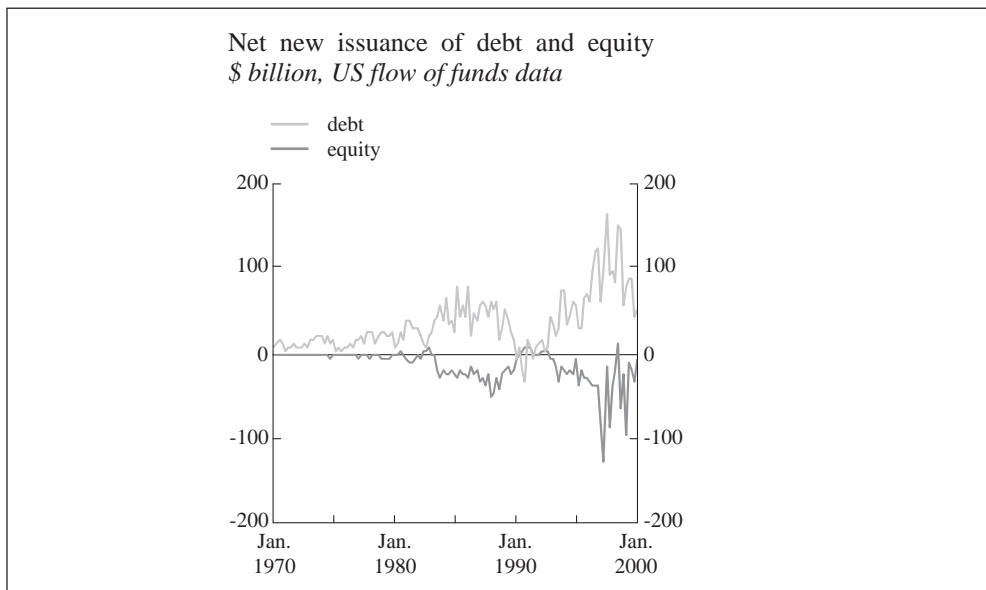
In the euro area, aggregate data are hard to come by, but the effects can already be seen in the United States and are shown in Figure 7. Net issuance of equities, long negative due to share buybacks, is trending towards becoming positive, while net debt issuance is plummeting.

This phenomenon has implications for the principal market intermediaries: revenues from M&A, from equity issuance, from bond issuance and from loan issuance are all much more correlated than previously thought. The bubble which has been burst was not just in the equity market.

So how will the issuer market develop from here? We expect industrial bond issuance to fall 15% in € in 2003, compared with perhaps 30% in the United States. Thereafter, bond issuance will probably resume its growth: there is a discernible structural trend towards increasing net issuance, but it is progressing more slowly than previously thought.

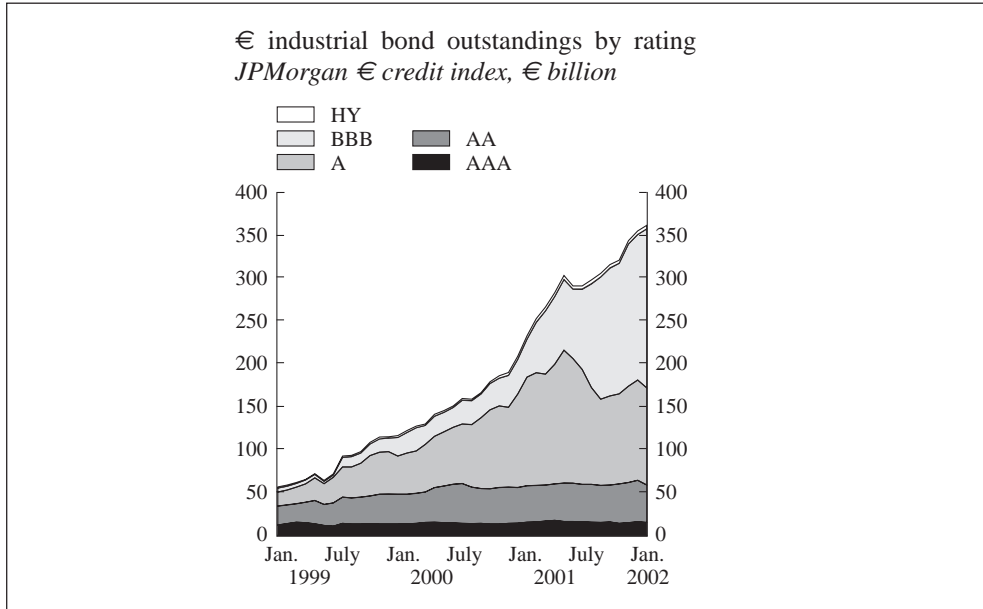
Certain other developments will be less related to happenings in the United States. The type of high-yield market which developed in the United States in the late 1980s will take a long time to be established in the euro area. Outstandings have increased due to downgrades of investment grade companies, but few of these issue new bonds.

Figure 7: Net new issuance of debt and equity in the United States



Source: US Federal Reserve Flow of Funds.

Figure 8: The distribution of borrowers



Source: Bondware.

### 2.4 Impact of the Loan Market

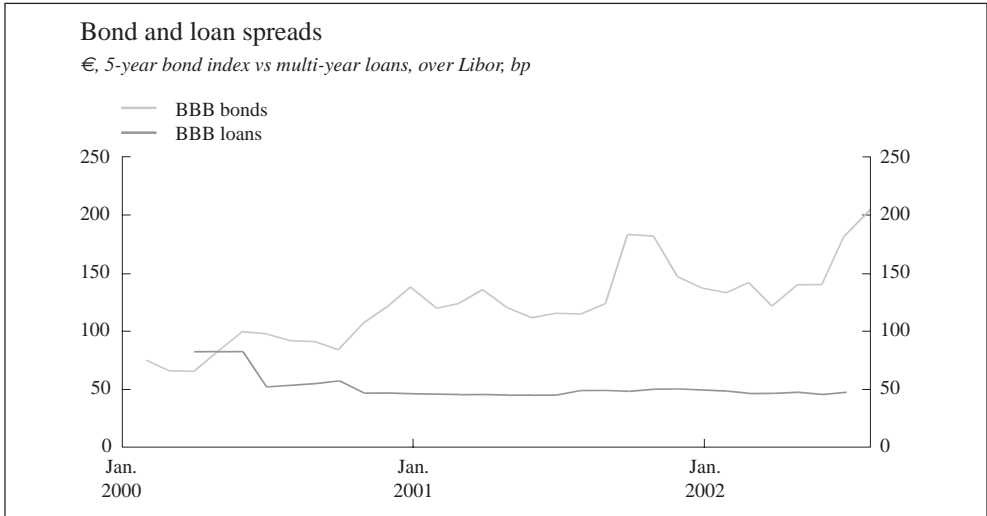
Perhaps most importantly, though, companies rated BBB and below continue to depend on the loan market in preference to the bond market because pricing is more attractive there.

As shown in Figure 9, loan spreads for BBB-related companies remain around 50bp – even for multi-year lending – while bond spreads have widened out to around 200bp. From the borrower’s perspective, this tighter spread comes at the expense of numerous covenants – manifest through higher recovery rates on loans than on bonds – but these covenants are worth providing as a means of avoiding higher rates of interest in the bond market. The loan market also provides considerably greater flexibility than bond markets for borrowers, as most loan facilities are structured so that they can be repaid and redrawn (revolving credits) and most bank loans can also be pre-paid and cancelled without penalty.

However, there are a number of factors which serve to distort a rational pricing relationship between bond and loan markets. The most important of these are accounting conventions (notably the distinction between accruals accounting for loan assets and mark-to-market accounting for bond assets), regulatory capital rules (Basel 1) and relationship-based incentives offered by companies to their banks. Observable secondary loan pricing is much more correlated with bond spreads as these assets strip out the relationship value imbedded in the primary loan market.

There has already been a shift from longer-term loan financing towards short-term back-stop or rollover facilities, on which default risk is much lower and hence profitability is higher. With the advent of improved systems for economic capital allocation across the banking industry, banks have come to recognise that lending to large corporates is a low-return business. Relationship pressure from clients and competition in the market place has

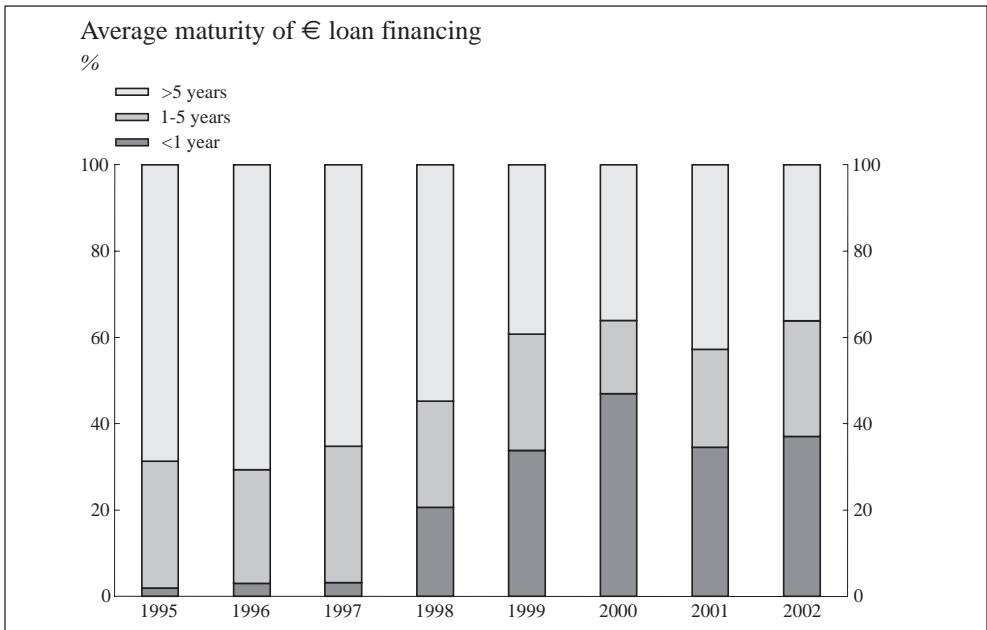
Figure 9: Bond versus loan financing in future



Source: JPMorgan, LPC Loan Price Connector.

caused banks to maintain and even increase their loan commitment and, although pricing has increased somewhat, the most noticeable change has been arounds the average maturities of loan commitments. As you can see in Figure 10, some 67% of loan commitments had

Figure 10: Shifts in loan financing



Source: Dealogic Loanware.

maturities longer than 5 years in 1995 against fewer than 40% in 2002. The shorter average maturity available from the loan market has forced borrowers to look to the bond markets for their term financing.

The distortion between bond and loan markets will not continue indefinitely. In particular, the advent of Basel 2 in 2005 will end the present anomaly under which loans with a maturity of less than one year attract a 0% capital requirement. That will increase the economic cost for banks to offer these loans, and should lead to convergence between loan spreads and bond/credit derivative levels. This in turn should lead to a greater proportion of borrowing being done through the market, but the transition will continue to be slow in the interim.

### 3. The Investor Dimension

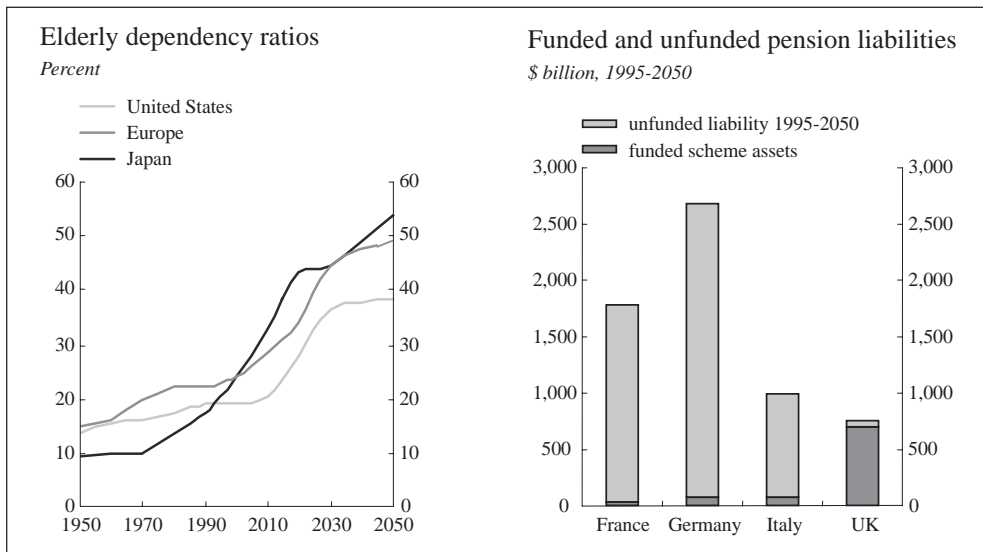
#### 3.1 The Pension Problem

If we change our perspective to that of the investor, we observe that Europe, like the rest of the world, faces a significant demographic problem. Elderly dependency ratios are set to double over the next 25 years, making existing pay-as-you-go pension schemes unsustainable.

It is in the euro area that this problem will be most acute, mostly because such a small proportion of the pension liabilities have been funded to date (see Figure 11). In the UK, higher levels of funding in the past have already created around \$1 trillion in assets which will themselves grow to cover most of the increase in liabilities.

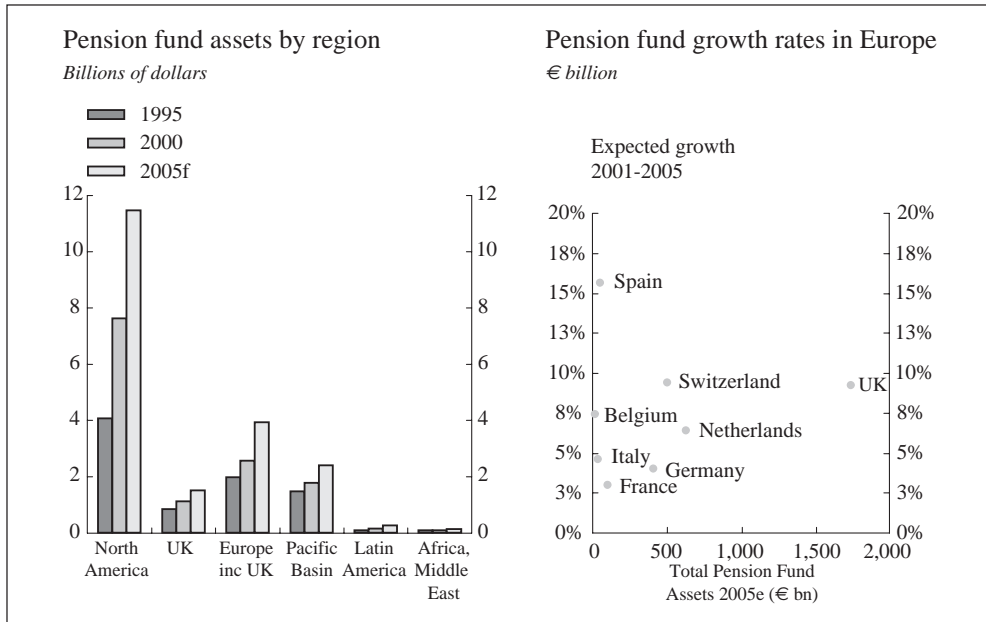
In all, European pension fund assets should grow by another \$1 trillion over the next 3-5 years. Percentage growth rates are likely to be fastest in some of the small countries like Spain, even if the lion's share of assets will remain in the larger countries with more established pension fund schemes, like the UK and the Netherlands. Even this rate of increase, though, looks pedestrian compared with the nominal growth projected for the US or

Figure 11: The global pension problem



Source: OECD, UBS.

Figure 12: Distribution of pension fund assets



Source: Deutsche Bank.

Source: DataMonitor.

UK in Figure 12 above. Once again, the impact of EMU on the European bond markets has been far from miraculous.

### 3.2 The Trend in Savings

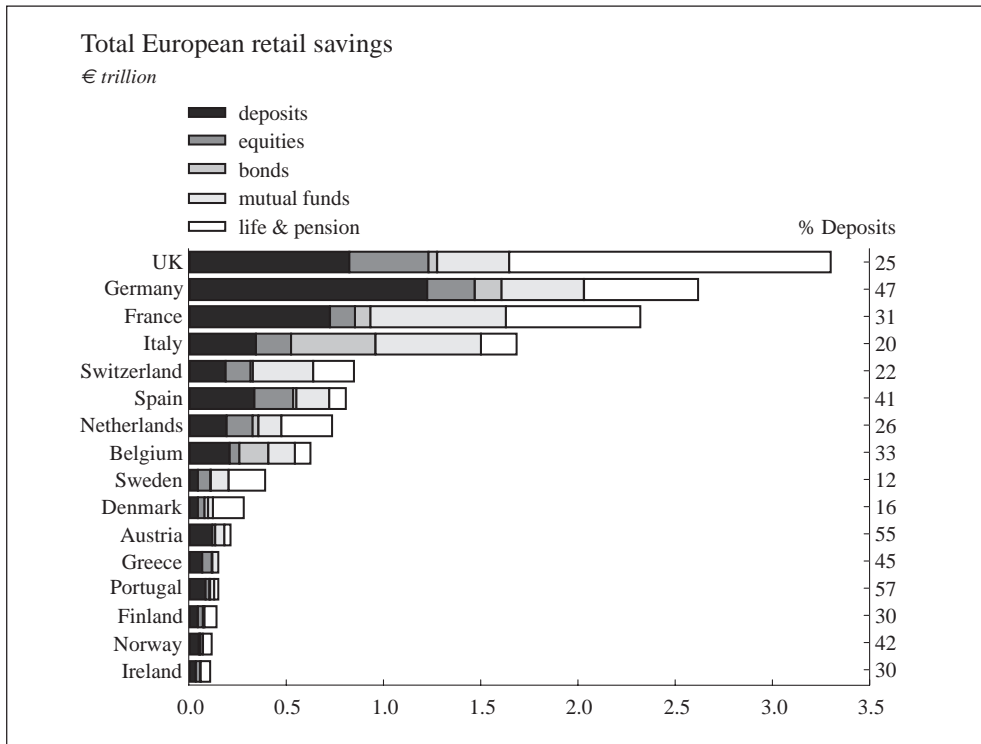
In addition to saving more, we should see people trying to save more effectively. Some 31% of household savings are held in deposits in Europe, compared with 15% in the US. In Germany and Austria, that proportion is close to one-half (see Figure 13). Demand for assets like bonds and equities should further be boosted by a gradual shift away from deposits.

This already seems to be happening; the greatest beneficiaries are institutional investors. Life insurers and pension funds will continue to have the greatest absolute growth, but mutual funds are rapidly becoming established as a viable alternative, for example through Individual Savings Accounts or ISAs in the UK. Life, pension and mutual fund assets have grown by €2.4 trillion since 1997. In addition to the €1 trillion of expected growth in pension funds, we should see almost that much again entering the mutual funds.

### 3.3 Asset Allocation

Where is this money going? Until recently, it was heading into equities. Despite enormous variations from one country to another, and a net decline in equity allocations in the UK, the average proportion of pension fund assets invested in equities has risen from 55% to around

Figure 13: Distribution of all retail savings



Source: DataMonitor.

65% over the past decade (see Figure 14). The greatest increases tended to occur in those countries which had the lowest amounts previously invested, and spurred talk of a structural shift towards “equitization” in Europe.

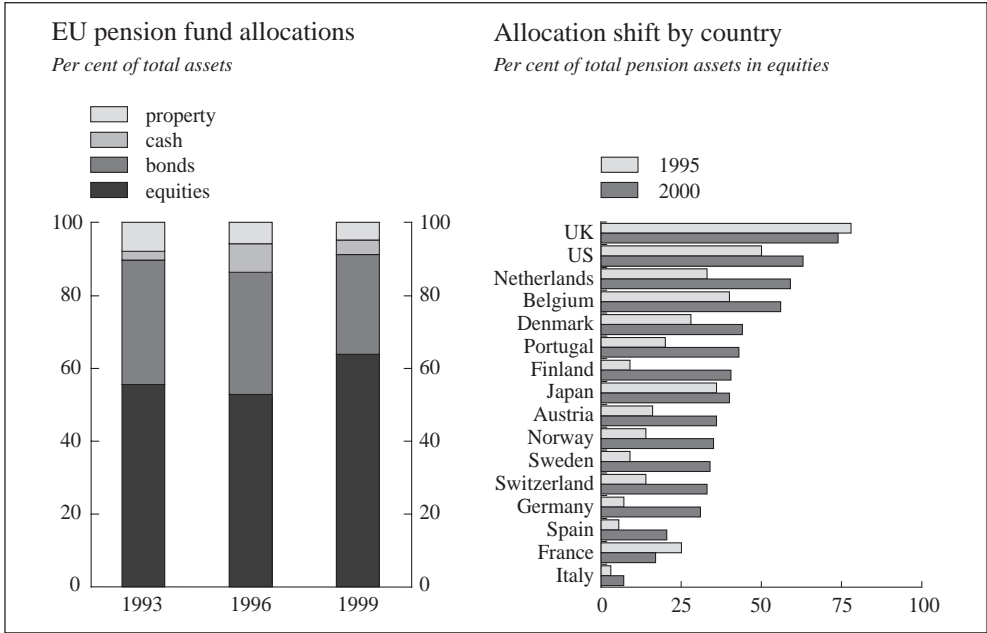
That shift towards equities was fuelled by the bull market, and is now being battered by the bear market. Mutual fund flows show significant withdrawals from equities, and much of the previous optimism about future equity market returns is now considered misplaced.

In risk/return studies, equities always used to look almost unreasonably attractive, sparking great academic debate about the appropriate “equity risk premium” in an attempt to explain how they had consistently generated superior returns with a less-than-expected amount of volatility.

Much of that has now been undone. Equity returns over the past five years now look highly unattractive relative to bonds. Estimates of long-term equity returns have fallen from 12 or even 15% to around 7-8% in most studies. And – equally importantly from an asset allocation perspective – they are now considered more risky. Figure 15 shows how the paradigm has changed.

It remains to be seen how much of current bearishness will have a lasting impact, especially as the equity market begins to recover. The most likely outcome, though, would seem to be that while we will not see significant outflows from equities, the rate of inflows will diminish.

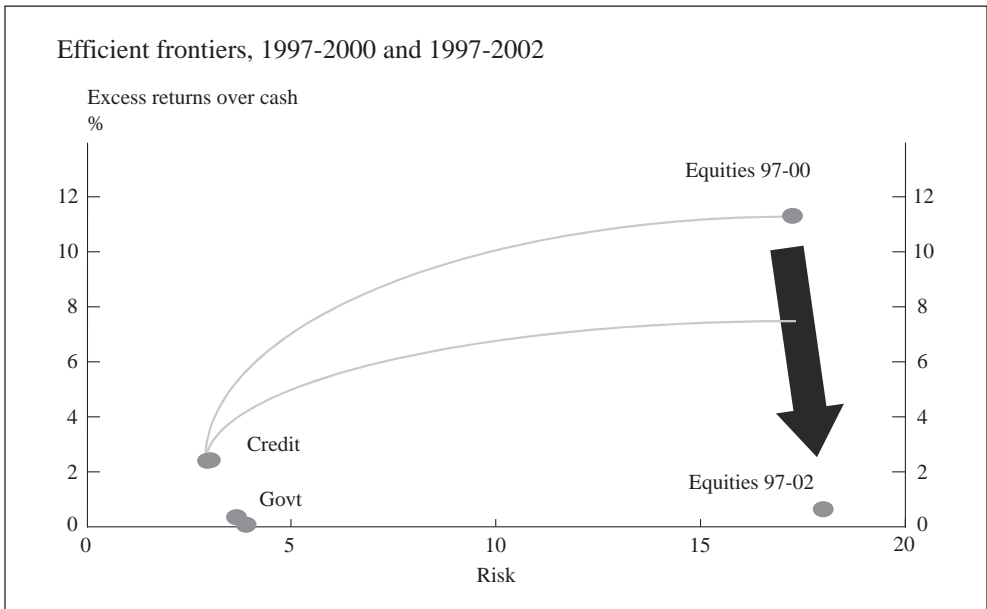
Figure 14: Institutional investor asset allocation



Source: EFRP.

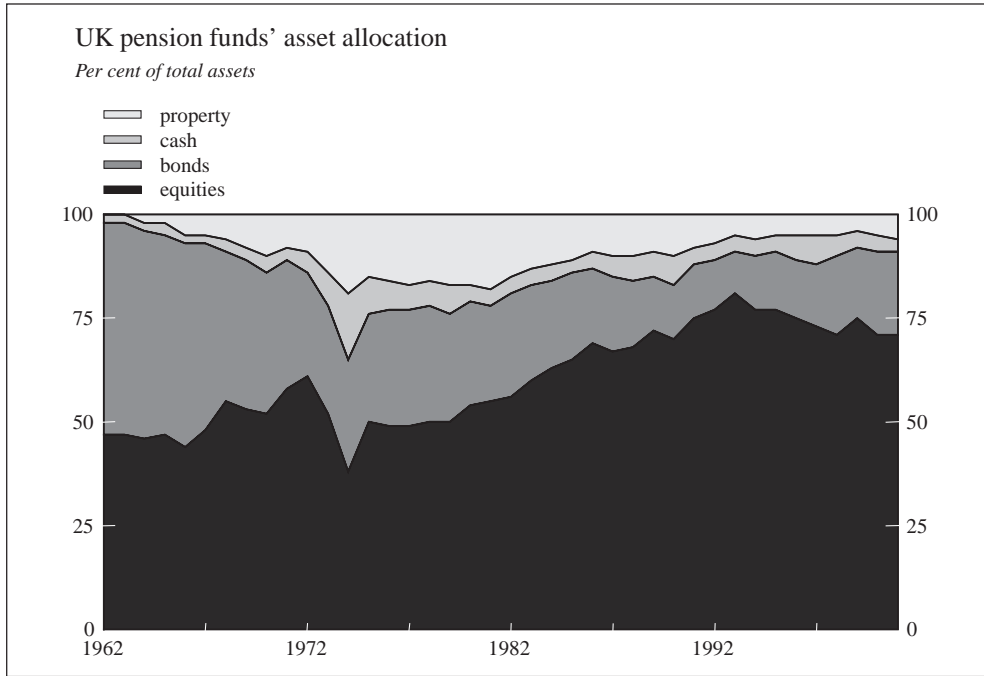
Source: Deutsche Bank.

Figure 15: The fall of equities



Source: JP Morgan.

Figure 16: Asset allocation in future



Source: UBS.

Much of the shift in asset allocation has already been done, just because of the value destruction on the equity side relative to the rest of an investor’s portfolio. Rather than withdrawing money from bonds in order to get back up to a “neutral” position, many fund managers seem to be simply adopting the new, lower equity allocations at which they have arrived as a benchmark going forward. Something similar seemed to happen in the UK (the only market for which we have data) following the equity bear market of the 1970s (see Figure 16).

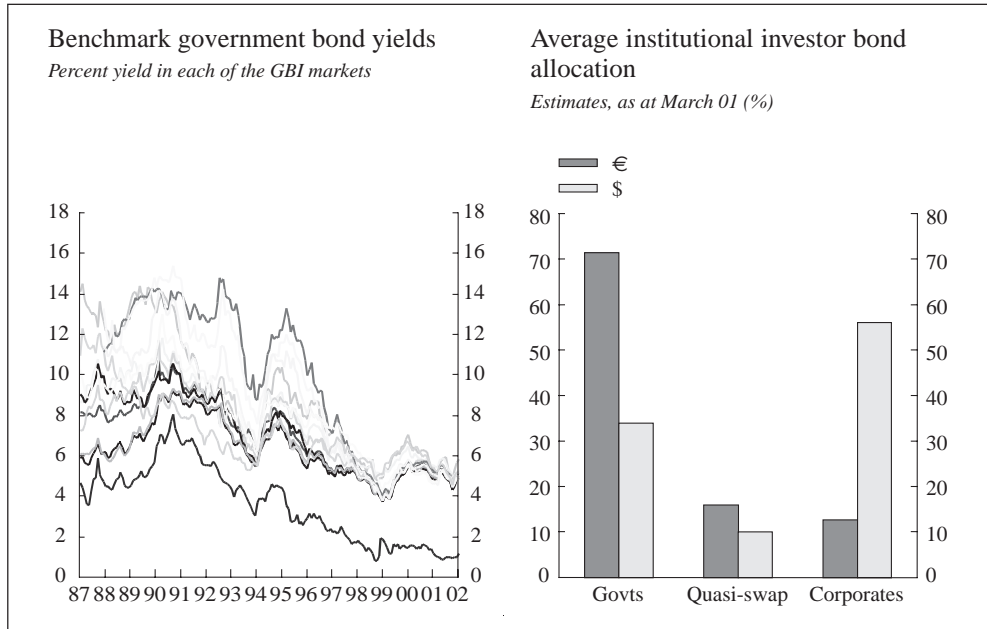
The main beneficiary of this shift will be the bond market. In addition, that shift is being fuelled by structural processes. Better asset-liability management techniques are contributing. Specifically, many pension and life companies are now using bond yields, and corporate bond yields in particular, as their source of rates at which to discount their liabilities. By construction, this is making equities look riskier and bonds look like a better investment relative to these liabilities.

Often, this is being reinforced by legislative changes, such as FRS17 in the UK, which forces companies to consolidate their pension assets onto their balance sheets. Even elsewhere, it seems likely that in a few years, the implementation of a new draft international accounting standard, IAS19, will have a similar effect.

Finally, the increasing maturity of pension schemes (especially in the UK) is contributing to the shift into bonds, as asset managers look for a steady stream of income rather than capital appreciation.

Previously, this money might have gone into government bonds, which remain easily the most liquid and (by a diminishing margin) the largest source of fixed income paper in Europe.

Figure 17: Asset allocation within fixed income



Source: JP Morgan.

Source: Emass.

But we have begun to see a structural shift by asset managers away from government bonds which seems unlikely to be reversed (see Figure 17).

Inflation targeting by central banks has reduced yield levels on bonds, directly impacting returns from passive holding. In addition, greater confidence in the abilities of central bankers has led to lower volatility and greater correlation between markets, reducing asset managers' returns from active position-taking. Finally, lower government bond issuance – constrained by the Stability Pact – has reduced the pool of available assets.

The result has been a shift into credit product (by which we mean assets which trade at a spread to government bonds). Benchmarks are shifting from governments towards aggregate or pure credit-based measures, and even those benchmarked to government securities have often made significant off-benchmark allocations. To judge from the US example, where credit makes up 50% of portfolios rather than around 15% in Europe, this shift has the potential to go much further.

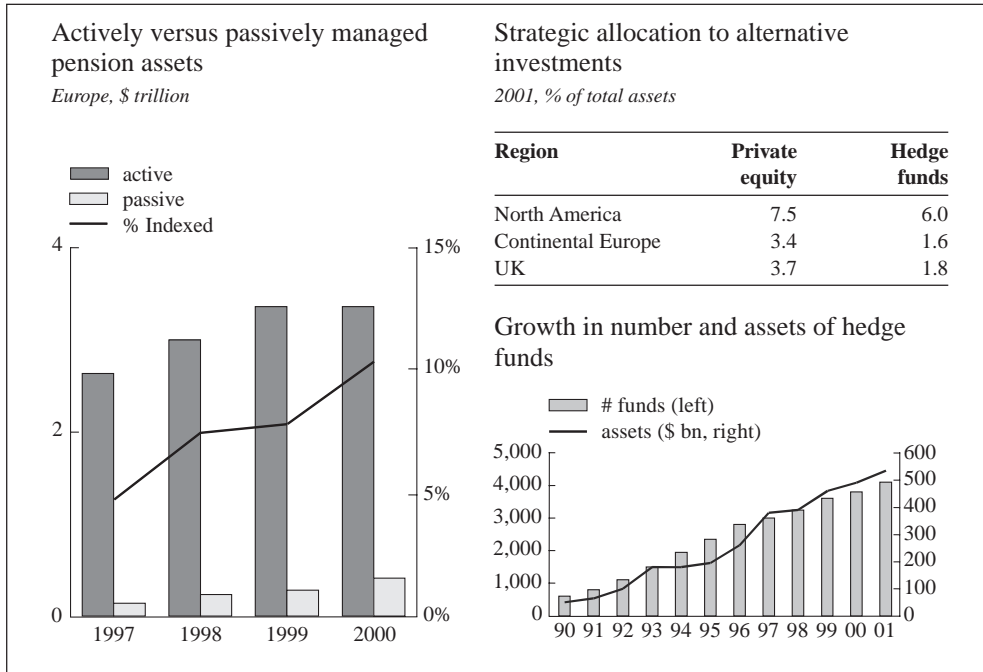
### 3.4 Investment Styles

Before we can draw conclusions about prospects for the investor dimension, it is worth considering some likely changes in the way asset managers do their business.

Both in equities and in credit, traditional asset managers are under pressure. Fees are already low, and are under pressure from managers' failure to deliver out-performance, both in equities and in fixed income.

This is gradually resulting in polarisation, albeit slower than many anticipated. The long-awaited shift towards a greater proportion of indexed assets seems finally to be happening,

Figure 18: Investment styles



Source: UBS.

Source: UBS.

albeit led by equities. This has been fuelled by the need to supply “default” funds for defined contribution pension schemes where no active manager was specified by the participant. And on the other hand, allocations to hedge funds, where levels of out-performance – and fees – are much higher, have also grown enormously. This trend (evidenced in Figure 18) of further polarisation between index-trackers and active manager specialists seems likely to continue, as it has done in the US.

**Conclusion**

The European Bond Market enjoyed tremendous growth in 2000 and 2001, but closer analysis suggests that this was as a result of financing the M&A boom, particularly in the TMT sector. The initial financing for these acquisitions has been subsequently refinanced in the long term bond markets as equity markets have closed to new issuance and as short-term investors have been reluctant to buy the commercial paper of corporates whose earnings and credit ratings were deteriorating in the face of the economic downturn. However, it is testament to the growing maturity of the European bond markets that these longer dated, lower-rated issues have been successfully placed in the market.

Notwithstanding that this analysis points to a more cautious view of the growth of these markets, there are a significant number of structural changes at work across Europe which will drive the future growth of the European bond markets. On the issuer side, these drivers are: (i) financing demand resulting from continuing consolidation pressures among companies needing to compete in a single market, and (ii) reduced availability of capital from

banks in loan form. On the investor side, the drivers are (i) the need to source assets to fund previously unfunded pension liabilities; (ii) the move from equity investments to debt investments as asset managers prefer the greater predictability of returns; (iii) the move by savers away from bank deposits to higher returning assets and (iv) the reduction in available alternative investment opportunities (such as foreign exchange, volatility, tax, incentives, high nominal interest rates) which makes credit assets (and specifically bonds) an increasingly important investment category. All of these drivers will ensure that the European bond markets will continue to grow at a healthy rate for the foreseeable future.

## Comment

Axel A. Weber

Let me start by saying that I should like to thank the European Central Bank for inviting me to this interesting conference and asking me to discuss such a challenging paper. I very much enjoyed reading the paper by Adjaouté and Danthine since it provides some new evidence on the effects of financial market integration in Europe. It shows that more integration of the euro area may actually increase the attractiveness of financial assets outside the euro area due to portfolio diversification considerations. Along the same line, the euro has altered the attractiveness of country versus industry portfolios within Europe for efficient portfolio diversification. But before discussing these interesting results, let me spend some time in reviewing the background of the paper and the methodological approach taken by the authors.

The aim of the paper is to discuss how asset pricing models can shed some light on the effects of the euro on bond and equity market integration and portfolio diversification in Europe. Two contrasting views exist on this issue. One argument in the literature suggests that EMU would reduce exchange rate risk and lead to more diversification across Europe. An alternative argument says that the reduction in regional divergences (i.e. through merger activity) will increase the correlation of asset returns across Europe and reduce the diversification benefits within the euro area.

The theoretical starting point of the paper is the international capital asset pricing model (ICAPM). The standard CAPM model implies a well-known separation theorem stating that in equilibrium investors hold the risk-free asset and the market portfolio. Portfolio composition is thereby determined through a risk-pricing relation. The ICAPM can be viewed as a direct generalisation of the CAPM if purchasing power parity (PPP) holds instantaneously and consumption preferences are the same across countries. The paper thus builds on the following key insights from portfolio theory:

- the degree of risk reduction by portfolio diversification depends on the correlation of assets in the portfolio;
- the risk of an asset when held in a large portfolio depends on its return covariance with the other assets in the portfolio;
- as the number of assets increases, the portfolio variance becomes more dependent on the covariances and less dependent on variances;
- the return on equities can be decomposed into a risk-free rate and an equity risk premium.

The empirical starting point of the paper is the fact that we have been observing a substantial internationalisation of financial markets, as witnessed by a huge increase in cross-border portfolio investments and a large increase in the number of companies listed on foreign exchanges. This should reduce the “home bias”, that is, the extent to which portfolio investments are concentrated in domestic securities despite the potential benefits of international portfolio diversification. The effect of EMU should have been that, with the euro area now being the “home” market, the “home bias” was reduced in member countries, which in turn would have resulted in major international portfolio adjustments.

In the literature, several reasons for a “home bias” have been proposed. First, many countries still have the requirement that institutional investors (pension funds, insurance companies) have to invest in domestic stocks, which hampers internationalisation. Psychological factors, such as portfolio investors’ irrationality, have also been proposed as a potential source of a “home bias”. In theoretical models, information asymmetry and

consumption insurance motives feature prominently in modelling the “home bias”. The first set of models argues that an unequal access to information at the macroeconomic and sector/firm level results in a “home bias”, whilst consumption-insurance models show that domestic stocks may serve as a better hedge against domestic inflation risk and are thus preferred over foreign stocks. Other potential explanations of “home bias” include market frictions, such as government controls, taxes or transaction costs. The transaction costs argument is based on the empirical finding that cross-border trades in comparison to domestic ones are both more expensive (by a factor of 10) and typically take longer (approximately twice as long).

When analysing *European bond market integration*, the authors find that the disappearance of currency risk has eliminated the major discrepancy between bonds issued by governments with identical credit rating in the euro area. Furthermore they state that with *identical* inflation rates resulting from a single monetary policy, the fundamentals of the participating countries’ government bonds have fully converged and that the same approximate risk-free asset is available to all euro area residents. Thus, for the European bond markets the euro was a major event and had an important impact, since euro area government bond yields are now closer in levels, display a higher degree of correlation, and are more stable than ever before (see Figures 1 and 2). The authors attribute this entirely to the convergence of fundamentals. However, whilst bond market convergence has increased, it is still far from being completed. Significant deviations from the law-of-one-price (LOOP) remain, and public bonds with the same credit rating show both yield differences as large as 30 basis points and a correlation between yields that is smaller than unity. These pricing differences reflect a failure of integration, which, as the authors point out, costs euro area treasuries up to €5 billion annually.

An additional empirical implication for European bond markets is that the advent of the euro is likely to have altered the risk-return characteristics of the euro-zone bond markets, enhancing the importance of non-euro currency bonds because security returns are much less correlated across non-EMU countries than within EMU. This is so because economic, political, institutional, and even psychological factors affecting security returns tend to vary across countries, resulting in a low correlation of returns among international securities. Business cycles are also often highly asynchronous across countries, and have become more synchronised within the euro area. Furthermore, there is substantial exchange rate risk in bond investment outside the euro area.

With respect to *European equity market integration* the authors again view the introduction of the euro as a major event, which had an important impact on the degree and strategy of international equity diversification within the euro area. The euro has affected the process of equity selection by altering the traditional top-down approach to diversification, where typically investors decide first on a country allocation grid to ensure adequate geographical diversification of portfolios and then select the best securities within each national market to the extent permitted by the grid. The paper argues that the euro has changed the importance of country versus industry/sector factors in explaining the cross-section of international returns in the sense that the country orientation has given way, within the euro area, to an industry or sector orientation. As a consequence of this, portfolio optimisation should be undertaken at the industry level.

Is there any evidence of such a new asset allocation paradigm in Europe? The paper aims at providing this evidence. To obtain it, the authors measure the correlation among industry or country indices (portfolios), using a more flexible approach than the standard Heston-Rouwenhorst procedure. They find that the Sharpe ratio of the optimal portfolios composed on the basis of sector indices is superior to that based on country indices since 1995. Standard

mean-variance analysis thus supports the changing asset allocation paradigm. Hence EMU has reduced risk diversification opportunities because the country pair equity return correlation has increased during the recent period (1995-2002 versus 1987-1994), whilst the sector/industry pair equity return correlation has decreased during the same period. The authors conclude from this that industry portfolios offer more risk diversification opportunities than country portfolios. However, they also admit that the evidence in favour of a superiority of industry portfolios over country portfolios is relatively weak, owing to a high degree of time-variability of the inference.

As mentioned above, an additional implication of the paper is that the advent of the euro is also likely to have altered the risk-return characteristics of the euro-zone financial markets by enhancing the importance of non-euro financial assets. Unfortunately, the paper provides no evidence on this conjecture.

To round off my comments, let me raise some additional issues regarding financial market integration and the reduction of the "home bias" in Europe, which came to my mind when reading the paper.

First, can we really expect a complete bond market integration in Europe in view of the consumption-insurance argument that domestic assets serve as a better hedge against idiosyncratic domestic inflation risk? Inflation diversity is still a key feature of EMU today and may persist due to productivity differentials in the prices of non-traded goods. The authors view inflation as being equalised across Europe which contradicts the facts. The benchmark of instantaneous PPP may thus be a bad choice for a reference point against which to judge the potential effects of EMU on financial and goods market integration in Europe.

Second, an efficient sector/industry priority in portfolio diversification may be difficult to adopt in practice. The European common market programme and a level playing field due to European competition policy may in turn increase the sector correlation and may thus weaken the present empirical evidence in favour of a priority for industry/sector factors. Furthermore, equity issuance by smaller industries/sectors in some market segments may be insufficient to allow for an effective diversification due to a thin supply side of these markets.

Finally, European industry/sector clusters and regional/country clusters are not independent of each other. As standard trade theory suggests, specialisation has occurred over the past and is likely to increase within the European Common Market. At the extreme, under complete specialisation and fully integrated European goods markets, the sector and the country correlation would become identical within Europe. Thus, the distinction between the industry and country dimension of portfolio diversification may be less useful as European integration proceeds. Moreover, information asymmetries may prevent an efficient pan-European industry/sector diversification of portfolios since informational problems are even more pronounced at the sector/firm level than at the country level. Special information problems may exist for sectors/industries which produce non-traded goods. In addition, one may expect that the correlation structures of returns across sectors for traded and non-traded goods in Europe are quite different and that the lower correlations exist primarily for non-traded goods, for which however the information asymmetries are most pronounced.



## General Discussion

The chairwoman, **Sirkka Härmäläinen** (ECB), opened the general discussion by inviting **Jean-Pierre Danthine** to respond to the points made by the discussants. Danthine welcomed the thorough discussion of the home bias phenomenon by Axel Weber. Home bias has indeed a strong impact on most of the key conclusions of the paper, such as full convergence of risk premiums and returns as well as the reduction in the cost of capital. Danthine also replied to Weber's points that sector diversification would be difficult to implement and ultimately increase the correlation between sectors making diversification even more difficult. On the first point, he replied that the generally observed rise in passive investment strategies and the growth of exchange traded funds simplify diversification across sectors. On the second point, he did not agree with the notion that sector correlation would increase as a consequence of sector diversification, as the main drivers of sector correlations are the fundamentals. On this point **Axel Weber** retorted that previous studies carried out in the United States show that the return from a well sector-diversified portfolio can be enhanced via the introduction of foreign equity.

**Charles Goodhart** (London School of Economics) started the discussion from the floor by raising two issues that in his opinion should still be addressed in the paper by Adjaouté and Danthine. The first one concerned the focus of the research on euro area countries. This limitation in scope does not allow the authors to differentiate between general equity market developments world-wide and specific developments in Europe that could be associated with the introduction of the single currency. For example, the global increase in mergers and acquisitions, especially in the Telecom sector, which characterised the late 1990s, as well as the impact of the so-called new economy may well have caused an increase of sector effects in equity returns and a reduction of country effects both in Europe and elsewhere. The second issue related to the use of nominal bond rates as a proxy for the "riskless interest rate" in the analysis. Nominal interest rates do not in general coincide with real interest rates. While the adoption of the single currency forced convergence of nominal interest rates in the euro area, real rates may actually have been diverging due to the lack of convergence of country inflation rates. Goodhart urged to repeat the analysis using real interest rates. **Jean-Pierre Danthine** agreed that further care should be taken to fully include in the analysis countries outside the euro area. However, he pointed out that they had done some preliminary work in this direction, which seemed to support the robustness of their results. Danthine further recognised that the use of real interest rates was a good suggestion, which was worthwhile to pursue particularly for the pre-euro period.

**Christian de Boissieu** (Université de Paris I, Panthéon-Sorbonne) disagreed with Danthine's view that differences in credit risk between euro area Treasury bonds have disappeared. He pointed out that the persistence of spreads between yields of government bonds issued by different euro area countries could still be due to differences in credit assessments. For example, the market could still price credit risk differences based on past experience. **Danthine** clarified that his idea of "removed credit risk" meant to compare yields of government bonds issued by different countries but with the same credit rating (like France and The Netherlands, for instance). In these cases, he felt that there was a general view among researchers that still existing differences were associated with liquidity risk and ultimately

with a lack of financial integration. This view, however, would not in itself exclude completely the presence of some elements of credit risk.

**Philipp Hartmann** (ECB) referred to the presentation by Bruce Carnegie-Brown concerning developments in the bond market. He felt that the speaker had expressed the disconnection between the introduction of the single currency and the European bond issuance boom in a much stronger way than was the case in his paper. A larger fraction of the mergers and acquisitions that caused part of the debt financing needs in the euro area could very well have been the result of increased pressure for companies to consolidate in order to compete more effectively in the single market. **Carnegie-Brown** agreed that anecdotal evidence suggested that a lot of merger and acquisition activity was indeed due to increased pressure arising from the impact of the euro on the single market. However, this hypothesis was very difficult to test because of many global economic developments taking place at the same time. Going back to the point made by Charles Goodhart, for instance, contemporaneously to what happened in the euro area there was also a surge of merger and acquisition activity in the United Kingdom and the United States. In addition, euro area data are contaminated by investments made by residents of the United Kingdom and the United States.

Hartmann also asked Bruce Carnegie-Brown to express a long-term view as a market participant about the size difference between the US and European corporate bond markets. Would Europe ultimately catch up and if yes how long could it take? For example, he mentioned that a significant structural difference between the US and the euro area corporate bond markets was an uneven sector distribution. In the euro area financial corporations issue a much larger share of total corporate debt than the case in the United States. Hartmann wondered whether this imbalance could represent an impediment to future convergence. Carnegie-Brown answered that there was ample scope for convergence, notwithstanding differences, for instance, in accounting standards and in profitability. In the short term these factors still constrain leverage ability of corporations in the euro area, but ultimately they should disappear. The fact that the largest share of corporate debt in the euro area is issued by financial corporations was in his opinion mainly related to the existence of strong bank relationships. In these circumstances bank credit is readily available and banks themselves refinance in the bond market. Also concerning this feature, Carnegie-Brown would expect a convergence between the United States and the euro area over time.

**David Green** (UK Financial Services Authority) referred to the discussion by Axel Weber concerning obstacles to integration of European equity markets. He pointed out that some of the outstanding issues, which seemed, on the face of it, to be mainly of technical nature, appeared more and more affected by political pressures for the preservation of national markets.

**Gianluca Garbi** (Euro-MTS) pointed out that when Adjaouté and Danthine look at the spreads between government bond yields among euro area countries, it is important to specify the maturity of the contracts. Various maturity segments of the bond market may differ substantially in terms of liquidity and German bonds should not necessarily be regarded as the benchmark for all maturities. Kpate Adjaouté replied that the redemption rates reported in the paper were carefully constructed choosing the most liquid bonds in each maturity segment. Only the most illiquid contracts were excluded from the calculation.

## 6

### **Central Banks and Financial Stability: Exploring a Land in Between**

Tommaso Padoa-Schioppa\*

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## 1. Introduction

Over the short span (little more than a third of a century) of the author's service as a central banker, the art of central banking and the position of the institutions practising that art have changed profoundly. A third of a century ago, when currencies were still linked to gold, most central banks' monetary policies were aimed at balancing low inflation and high employment, and they were often ready to sacrifice the former to have more of the latter. With few exceptions, central banks were controlled by the Treasury, which was the *de facto* monetary policy-maker. Most of them were in charge of banking supervision. Banking crises were virtually non-existent. However, the principle that the central bank would provide liquidity (and even capital) to support an ailing bank was an integral part of the good central banker's hallmark. Deposit insurance was rare. The notion of moral hazard was confined to the jargon of private insurers.

In that world, it was taken for granted that financial stability was a major responsibility of the central bank. Indeed, monetary policy, financial stability and banking supervision formed a single composite, whose parts were difficult to disentangle. That world was perhaps not fundamentally different from what central banking had been one or one and a half centuries earlier, i.e. from the time in which central banks had emerged as one of the pivotal institutions of a modern economy based on division of labour and exchange.

Much bigger are the changes that have occurred over the last three decades or so. Currencies are no longer anchored to gold. Central banks are assigned the overriding mission of preserving price stability. They have been granted independence, albeit in various degrees depending on places. Economic theory re-established the long-term neutrality of money on a firm basis. More recently, the task of supervising banks has been taken away from the central bank in a number of countries.

These developments have unbundled the old composite to the point that one may wonder whether financial stability – a “land in between” monetary policy and prudential supervision – still ranks among the tasks of a contemporary central bank. Indeed, both in academia and in government, there are supporters of the view that a central bank should regard financial stability as a good for which it simply takes no responsibility whatsoever. Yet, one needs only read the financial chronicles of 2002 to find resounding evidence for the contrary.<sup>1</sup>

This essay argues that the involvement in financial stability does, and should, remain, also in our days, an important component of central banking. Such involvement is rooted in the role of central banks as issuers of money. As all soundly managed financial institutions, central banks need to monitor the quality of their counterparties, whose realm spans over the whole banking system. This “ordinary banking” concern adds to the role of providing emergency liquidity, from which no central bank can abdicate. Moreover, they exert an overall surveillance of the financial sector health, and strive to prevent the propagation of crises through financial markets and payments and settlement systems. They have a crucial

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<sup>1</sup> The Bank of Japan recently decided to purchase corporate equities held by Japanese banks in order to reduce the market risk within the banking system and to support financial stability. In the United States, a debate has developed on what the Fed did, or did not do, or should have done, to prevent or burst a stock price alleged bubble. In the EU, a wide debate on how to best organise financial supervision, and on what role central banks should have in it, has occupied officials, academics and the media for years and it is not finished yet.

interest in increasing the resilience of the financial system and minimising the recourse to emergency liquidity facilities. All these functions follow from the nature of the central banking business, not from the assignment of supervisory functions.

Central bank involvement has recently gained additional dimensions. Notably, the transformation of the financial system, both in Europe and in other countries, has engendered a new type of financial crisis and posed new challenges. These take the form of greater exposure of banks to markets, greater importance of non-financial institutions, emergence of large value payment systems outside the central bank, and renewed concerns about liquidity. Central banks are uniquely positioned to provide a positive contribution to meeting these challenges.

The role of central banks in the pursuit of financial stability occupies a “land in between” monetary policy and prudential supervision. The difficulty in accurately defining this role results from the lack of a clearly established analytical and operational framework for financial stability. The essay is conceived as a contribution to filling this gap. Its primary aim is not to be prescriptive or to make definite policy recommendations, but rather to further the debate on these issues.

In the following, the focus will be on a central bank that does not have direct responsibility for prudential supervision. This assumption contributes to the clarity of the analysis. It also fits with an important feature of the Eurosystem<sup>2</sup> – the central bank system of the euro area – and of several other national central banks. The issue of whether or not banking supervision should be inside or outside the central bank and of what is the most suitable supervisory structure at the national level is not addressed.<sup>3</sup>

The essay is organised as follows. Section 2 deals with the question of why central banks are involved in financial stability. To this end it reviews the relevant historical and theoretical underpinnings. Section 3 looks at recent challenges to the traditional paradigm presented in Section 2. Sections 4 and 5 discuss the recent transformation of the financial system and its implications for the nature of financial crises. The essay then presents a framework to map “the land in between”, i.e. to define the position and tools of the financial stability function (Section 6) in relation, respectively, to monetary policy (Section 7) and prudential supervision (Section 8). Sections 9 and 10 discuss the specific context of the Eurosystem as an example, which is relevant for identifying the tools available to a non-supervisory central bank. Section 11 is a summary and conclusion.

## 2. History and Theory

Central banks began to be involved in financial stability when they undertook the issuance of paper currency (i.e. banknotes), which replaced previous metallic currencies. They became even more involved when bank deposits grew into a substantial share of the money stock. In Europe, the model of a public central bank acting as the sole issuer of legal tender was

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<sup>2</sup> The Eurosystem consists of the European Central Bank (ECB) and the national central banks (NCBs) of the countries that have adopted the single currency. Several Eurosystem NCBs conduct supervisory responsibilities as their national tasks (i.e. outside their tasks within the Eurosystem), while some others do not have such responsibilities.

<sup>3</sup> See Padoa-Schioppa (2002a), and Goodhart and Schoenmaker (1995) for discussion of these issues.

adopted in the nineteenth century.<sup>4</sup> In the United States, this process took longer and was concluded in 1913 with the establishment of the Federal Reserve System. Around the first quarter of the twentieth century the total money supply had become a mixture of largely fungible central bank and commercial bank monies, the former risk-free and the latter potentially risky.

The establishment of a public monopoly for the issuance of legal tender (terms such as “final”, “outside”, or “high-powered” money were used as the jargon became more varied over time) was related to stability and efficiency needs.

The stability issue arose because, before the public monopoly, the issuers of banknotes were profit-maximising commercial banks, who had incentives to print more notes than they could back with holdings of gold or silver, or with deposits of government bonds. This led to “wildcat” banks that heavily engaged in over-issuance.<sup>5</sup> The public’s confidence was frequently abused and crises periodically rocked the financial system.

The efficiency issue was due to prohibitive transaction and information costs entailed by the coexistence of many different private monies. There was no single currency that could be used everywhere. More importantly, the price mechanism was severely impaired, as competing monies of equal nominal but different real value, resulted in several price-quotations for the same goods. Such a system of multiple prices was very costly and complex for vendors to manage and for consumers to compare.<sup>6</sup>

The U.S. experience with a system of competing private monies is exemplary of the above because it lasted for so long before the creation of a central bank. Hundreds of different banknotes were issued by commercial banks and circulated throughout the nineteenth century. The notes had different values depending on the creditworthiness of the issuer and, consequently, there were publicly quoted “exchange rates” between them. In the United States, the establishment of the Federal Reserve System was also a response to concerns about the anti-competitive nature of private-sector clearinghouse arrangements that had existed before.<sup>7</sup> Such arrangements were private-sector solutions to accommodate some of the shortcomings of the private issuance of banknotes. They have been regarded as substitutes for public intervention as they established *de facto* prudential requirements on participating banks. However, they also tended to support an oligopolistic banking system, reducing competition and restricting entry.<sup>8</sup>

The stability need – i.e. the need of a public institution to establish “public” confidence in a currency that has no intrinsic value – remains an uncontested argument in favour of the central bank solution. Indeed no credible private sector alternative has emerged.

In contrast, it has been recently questioned whether the advances in computing technology could invalidate the efficiency rationale for a public central bank. For instance, King (1999) noted that if computing power substantially increased “*there is no conceptual obstacle to the*

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<sup>4</sup> In some countries this function was assigned to a commercial bank (e.g. in the United Kingdom), which was no longer permitted to compete with other banks in exchange for this privilege. In others, this function was assigned to originally a private bank (e.g. in Sweden and Denmark) or to a new institution (e.g. in Belgium, France, Germany, Switzerland and Italy). See Capie et al. (1994), and Goodhart (1991).

<sup>5</sup> See e.g. Rockoff (1974). The term “wildcat” banks refers to banks that issued notes far in excess of what they planned to redeem, located redemption offices in remote areas (hence the association with wildcats), and then disappeared, leaving the public with notes worth considerably less than their original value.

<sup>6</sup> See Padoa-Schioppa (1994).

<sup>7</sup> See e.g. Gorton (1999), Rolnick et al. (1998), and Calomiris and Kahn (1996).

<sup>8</sup> See e.g. Hirsch (1977), and Rolnick et al. (1998).

*idea that two individuals engaged in a transaction could settle by a transfer of wealth from one electronic account to another. ... There would be no unique role for [central bank] base money".* King, however, recognises that *"the choice of a unit of account would still be a matter for public regulation, [and] only if the unit of account was managed would there be a role for a body such as a central bank"*. In my view, as long as the singleness of the currency is there, technological progress will not abolish the *economic* need for overdrafts in the banking system and ultimately in central bank money balances to provide liquidity on demand to those in need of it.<sup>9</sup> As argued by Hicks (1974), this is the superior efficiency of an "overdraft" economy, which needs to be supported by central bank money issuance, compared with a "pure exchange economy", which resembles the electronic exchange economy discussed by King and some others such as Friedman (1999).<sup>10</sup> Thus, while I am sceptical about the premise of the above argumentation, I would also stress much further the second aspect mentioned by King. In my view, singleness of the unit of account implies singleness of the medium of exchange and the latter cannot hold unless central bank money is there to act as the standard with which all other money-like liabilities must be fungible. In other words, central bank money is needed in the function of an ultimate and final means of payment also to effectively establish the unit of account.

A radical criticism to the single currency/single central bank was advanced by Hayek (1976). The origin of Hayek's critique was the historical experience of central banks failing to maintain a stable value of their currencies, partly due to the financing of government deficits. As the appropriate remedy he advocated a return to unregulated banking with competing private issuers of banknotes. However, Hayek's solution suffers from the same problem of "free banking" related to the inefficiency of multiple units of account discussed above. Moreover, as Klein (1974) argued, some inherently liquid and solvent entity would have to guarantee convertibility into some other liquid asset when information about the solvency of the issuing private bank is costly to obtain.<sup>11</sup> A central bank is just such an entity. In point of fact, instead of Hayek's approach, an alternative remedy was followed, which consisted in increasing the independence of the central bank from treasuries, setting a clear mandate for monetary policy, and strengthening central bank accountability.

The combination of central bank monopoly on issuing "final" money and commercial banks participation in the process of money-creation enhanced the involvement of central banks in financial stability. This had two main reasons.

First, central banks became the bankers' bank. They lent to commercial bank by rediscounting their assets and held their reserves of liquidity in the form of deposits. Central banks were the bankers' banks also in the sense that, to avoid conflicts of interest, they gradually ceased serving non-banks. In Europe this configuration emerged spontaneously, while in the United States it was instituted by the law, which required the Fed to provide liquidity and settlement services to commercial banks. As a matter of prudent management of their activities, central banks needed to evaluate the soundness of counterparties, the commercial banks. Irrespective of the attribution of formal supervisory tasks, this puts central banks in a natural position to address financial stability concerns.

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<sup>9</sup> See Padoa-Schioppa (2000).

<sup>10</sup> See related discussion also in e.g. Kareken and Wallace (1981) and Monnet (2002).

<sup>11</sup> Recent analysis has confirmed that the core presumption needed to support free banking is perfect and costless information. See Cavalcanti and Wallace (1999), and Williamson (1999).

Second, central banks became the guarantors of the singleness of the currency in an environment in which commercial bank money progressively developed into a large share of the total money stock. As the value of money was more and more dependent on the creditworthiness of commercial banks, the concern of central banks for the orderly functioning and stability of the banking system became an integral part of their task to maintain the public's confidence in the national currency.

This included, although it did not coincide with, lending-of-last-resort when a solvent commercial bank suffered liquidity strains. By the end of the nineteenth century, most European central banks had acted as lenders-of-last-resort, for example the Banque de France in 1882 following the collapse of Union Generale.<sup>12</sup> As for the United States, the endemic financial instability of the free banking era showed the limits of private sector solutions in coping with major liquidity needs in time of stress.<sup>13</sup> Effective liquidity support measures proved ineffective without ultimate access to central bank liquidity even after private clearinghouse arrangements developed. After the establishment of the Federal Reserve, the frequency of banking panics substantially decreased, in part due to the provision of occasional liquidity assistance by the new institution.<sup>14</sup>

The provision of final liquidity remains a most powerful rationale for the role of central banks in promoting and providing for financial stability. Indeed, central bank money has proven to be the most valuable settlement medium in time of crisis, when confidence in the ability of commercial banks to meet their liabilities has faded away. Central banks are the only public institutions that can provide large amounts of liquidity and act fast when needed.

Thus, the role of central banks in financial stability is part of their genetic code. It was – and, I would say, still is – an inseparable component of their role as the bankers' banks and of their monopoly on ultimate liquidity.

The way central banks developed a concern for banking as a “system” is worth some further comment. Indeed, why do we dub banking as a “system”, while we do not use this notion for the steel or chemical industries, or even for the insurance and securities industries? Firstly, banks are interconnected through the payment system, whose essential feature is currency-specificity. It refers to the circulation of one and the same money, which is completely fungible throughout the economy. Fungibility is an essential condition for the acceptance of a currency and one of the key public goods to be preserved in a monetary system. At the same time, however, the payment circuit links participants in a network that provides a channel for the propagation of risks. Secondly, banks collectively have the function of channelling liquidity to the rest of the financial sector and into the economy as a whole. In doing so they are critically dependent on access to central bank liquidity. Thirdly, confidence in the currency and in the central bank is a good that only exists if shared by virtually all participants in a single currency area.

A financial system may, and usually does, remain segmented to some extent. However, if a liquidity need emerges in a specific segment of it, it is always the central bank that bears ultimate responsibility. Hence, all the answers to why banking is a “system” have to do with the singleness of the currency and the central bank. This also shows that – with or without formal supervisory functions – the central bank is a key part of the financial system and responsible for its smooth functioning.

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<sup>12</sup> See Capie et al. (1994), and Goodhart (1991).

<sup>13</sup> See e.g. Calomiris and Kahn (1996), and Rolnick et al. (1998).

<sup>14</sup> See Miron (1986).

In Europe, prudential supervision was not formally inscribed in the charter of central banks.<sup>15</sup> These activities evolved naturally during the nineteenth and early twentieth centuries before they were explicitly recognised in law.<sup>16</sup> In contrast, a formal mandate to establish effective banking regulation and supervision was attributed to the Federal Reserve System from the outset.

In the early 1930s, banking regulation was considerably tightened after the banking crises shaking the United States and Europe. This included strict constraints on the composition of banks' assets and liabilities, rationing of licenses, limits on maturity transformation, separation of commercial and investment banking, and geographical segmentation of activities. Later on, in the vast process of liberalisation and deregulation that started in the 1970s and progressed thereafter, such restrictions were relaxed throughout the world. Subsequently, supervisory tools and practices have evolved towards a more market-friendly approach. Administrative restrictions have been increasingly replaced by less intrusive, indirect prudential standards, such as capital requirements.

Deposit insurance schemes also became a key component of the arrangement put in place to foster financial stability. In the United States deposit insurance was introduced after the Great Depression, while in Europe such systems were mostly established in the 1980s or later.<sup>17</sup> This additional safety net was created to support bank stability by removing incentives for depositors to join a bank run, but there was also a social concern to protect "unsophisticated" or "small" depositors.

### 3. Recent Challenges

In the last third of century, the role of central bank in the pursuit of financial stability was confronted with new intellectual and institutional challenges. These challenges called into question the validity of the paradigm shaped by the experiences of the nineteenth century and the first half of the twentieth century; a paradigm based on the combination of central banks' lending of last resort role with regulatory and supervisory tasks. This same recent period, however, has also seen the emergence of an institutional architecture combining elements that had not previously been present or prominent in the arrangements of most countries. These elements were a clear mandate for monetary policy to have price stability as its primary objective, the statutory independence of the central bank and the assignment of banking supervisory tasks to an agency separate from the central bank.

A first challenge came from the heightened academic debate on whether banks are special or, in other words, whether any public intervention in the banking sector is justified on theoretical grounds. Recent academic research has found this justification in the inherent instability of the banking industry and the consequent threat to the stability of the financial system. The origin of this threat lies in the very nature of banks, and is now well understood: the transformation of short-term liabilities into illiquid long-term credits. As originally shown

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<sup>15</sup> To clarify, the term supervision is used here to cover both rule-making (regulation) and rule implementation and enforcement (supervision narrowly defined). The former consists in establishing the rules which financial institutions are required to follow, while the latter is concerned with enforcing compliance with the regulations and examining the risk exposures and management of institutions.

<sup>16</sup> See Revell (1975), and Goodhart (1991).

<sup>17</sup> In some countries this occurred in conjunction with the implementation of Directive 94/19/EC, which requires the existence of a deposit insurance scheme and harmonises the minimum level of protection (at €20,000).

by Diamond and Dybvig (1983), banks provide liquidity insurance to depositors, but the maturity mismatch between deposits and loans makes them vulnerable to runs.<sup>18</sup>

It is important to stress that the evil to be avoided is not the failure of just a single bank. On the contrary – in the banking sector like in any other sector – occasional failures and exits from the industry are, and should be, part of a healthy market mechanism.<sup>19</sup> The supervisory community clearly recognises this point (e.g. in the Basel Committee's Core Principles on Banking Supervision of 1997) as a matter of principle. A different situation, however, arises if a bank risks failing as a result of a purely speculative and irrational behaviour of its depositors, or if a single failure risks degenerating into a panic. In the latter case, as several financial institutions may be simultaneously affected, essential functions of the banking system may be endangered, such as the provision of liquidity and payment services. Contagion is indeed recognised as a key component in the development of many financial crises (see Section 5).<sup>20</sup>

A second challenge came from increased and sometime extreme concerns over the moral hazard consequences of deposit insurance and lending-of-last-resort by central banks (the so-called public safety net). "Moral hazard" was originally an insurance term adopted to refer to a tendency of the insured to reduce the care taken to avoid insured losses.<sup>21</sup> In banking, the term refers to tendency to take on extra risk – such as increasing leverage or investing in riskier assets – at the expense of the public safety net. Those (e.g. Benston and Kaufman) who push the argument against moral hazard to the extreme tend to emphasise its high cost relative to the benefits of the safety net.

Obviously, the very existence of a safety net makes complete elimination of moral hazard impossible. Moral hazard, however, can be substantially limited through specific design features. For example, discipline can be exercised on risk taking by bank managers if deposit insurance is circumscribed, leaving uninsured some categories of depositors.<sup>22</sup> The same effect can be obtained through risk-based premia and co-insurance. As regards lending-of-last-resort, central banks have strengthened a cautious stance by adopting the policy of case-by-case discretion. They decline to specify in advance which financial institutions would be granted emergency liquidity and under which conditions, an attitude dubbed by Gerry Corrigan as "constructive ambiguity". Finally, it is crucially important that deposit insurance and lending-of-last-resort be complemented by effective prudential supervision. In point of fact, the element of insurance brought about by the lending-of-last-resort function was the major reason for developing the supervisory function in the nineteenth century.

In the academic debate, and at time in practice, alternative solutions to the safety net have been considered in order to remove the moral hazard. One consists of introducing new restrictions on banking to eradicate the very source of risk by separating the maturity

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<sup>18</sup> Diamond and Dybvig showed that standard deposit contracts in combination with investment in illiquid assets always create the possibility of bank runs, even if the bank in question is solvent (a "speculative bank run").

<sup>19</sup> In the literature this is referred to as "information induced" bank runs. See Postlewaite and Vives (1987), Chari and Jagannathan (1988). Saunders and Wilson (1996) argue that most US bank runs have been of this type.

<sup>20</sup> See, for example, Freixas and Parigi (1996) and Allen and Gale (2000a). Humphrey (1986), using data from the private US clearing house CHIPS, found that roughly a third of participants would default after the failure of one major participant. Less dramatic results were found by Angelini et al. (1996) for an Italian netting system.

<sup>21</sup> The pioneering work on moral hazard was carried out by Ross (1973). The first formal analysis of this problem was by Mirlees (1974).

<sup>22</sup> See Gropp and Vesala (2001).

transformation and the liquidity provision functions. An early formulation of this idea was the suggestion, put forward by Friedman (1960), of “100 per cent reserve” banking, which was later supported by Tobin (1985).<sup>23</sup> A more recent proposal, by Merton and Bodie (1993), advocates a “narrow banking” model based on obliging banks to hold only liquid and safe assets. As a result of all these reforms, depositors would lose any incentive to start a run. I rather share the view of those who argue that a renewed restriction of the banking business, one that would force it back to the “narrowness” from which it started, would damage the economy by depriving it of the fundamental benefits obtained from modern banking.<sup>24</sup> A risk would be removed, but at the cost of substantial efficiency losses. Without cars, the risk of car accidents would fall to zero, but is that what we want?

Another idea, which has received some intellectual support, is to suspend the convertibility of bank deposits into cash in periods of crisis. Seen as a practical solution to the fragility of the banking sector, suspension has been used by public authorities as a tool to “buy time” only occasionally and with very negative results (most recently in Argentina).<sup>25</sup> Here again, I would share the views of those who think that suspending convertibility has more drawbacks than advantages. Not only are its legal foundations very doubtful, but its effectiveness as a real solution has been shown to be quite limited.<sup>26</sup> Ultimately, confidence is unlikely to be supported by the statutory possibility, and the actual use, of the suspension of such a crucial obligation as the repayment of what is, for good reason, called a demand deposit.

A third challenge was the trend towards a separation of prudential supervision from central banks.<sup>27</sup> Various arguments have been advanced in favour of separation. It is maintained that conflicts of interest may arise when combining the two responsibilities of monetary policy and supervision. Moreover, some fear an excessive concentration of power in a central bank endowed with a highly independent status. Finally, conglomeration and the blurring of the boundaries between different financial products and institutions are said to call for close interplay between banking, insurance, and securities supervision. The last two arguments are interrelated as concentration of power in an independent institution would be a particular problem if, in addition to maintaining price stability, it were to be entrusted with the supervision not only of banks but also of non-bank financial institutions.

In my view, there is no conclusive theoretical or empirical research to back the arguments in favour of separation, nor any pointing to a single optimal model for supervision. The issue of a possible conflict between price stability and financial stability is further addressed in Section 7. As regards power concentration, mechanisms of checks and balances and procedures to ensure accountability are in place for central banks, as for other public bodies. Indeed, central bank independence by no means implies lack of accountability. Moreover, different accountability regimes can be devised, depending on the particular central banking functions.

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<sup>23</sup> This idea is certainly not new and it can even be traced back to Fisher and Simons’ writings in the 1930s.

<sup>24</sup> According to Wallace (1996), narrow banking limits the ability of the banking sector to transform savings into investments. Kashyap et al. (1999) argue that the benefits of a bank intermediation would disappear, since narrow banking would break the synergies between providing liquidity on both sides of the balance sheet.

<sup>25</sup> Wallace (1990) and Diamond and Dybvig (1983) argue that in a bank run situation, a bank should announce a suspension of convertibility. In this way, a solvent bank protects its assets from undesirable runs and ensures that it can fulfil its liabilities later on.

<sup>26</sup> See Engineer (1989) or Qi (1994) for theoretical arguments against the suspension of convertibility.

<sup>27</sup> This development has occurred in Denmark, Sweden and Canada and, more recently, in the United Kingdom, Australia, South Korea and Japan.

Considering these recent developments, the question arises of whether the special role for central banks in financial stability remains in place.

A factor supporting the preservation of such role is the inadequacy of deposit insurance as a sufficient tool to maintain financial stability. Deposit insurance prevents “small” depositors from losing faith in their bank, but today the bulk of bank liabilities are held by other banks and financial firms, who are uninsured creditors. In the euro area, for example, interbank liabilities account, on average, for around one-third of total bank liabilities, and they consist for around 70% of non-collateralised deposits.<sup>28</sup> If a bank defaults on its obligation, its failure could spread to other banks leading to other defaults. Experience has shown that, among uninsured counterparties, rumours may trigger fear, and fear may spread even in circumstances in which the bank is sound and solvent. Panic is not a disease contracted by small depositors only.

In certain circumstances, wholesale markets themselves are susceptible to a liquidity crisis. In principle, unlike retail depositors, banks and other corporate counterparties can monitor banks in order to avoid large and risky exposures (“peer monitoring”). This argument has been used to assert that solvent but illiquid institutions would always be able to obtain funding from the market and the central bank should only care about the overall liquidity situation.<sup>29</sup> Although the latter is undoubtedly the foremost case for central banks acting against a market disruption, the occasional need to provide liquidity to individual institutions cannot be excluded. The possibility of an interbank market failure would justify central bank intervention.<sup>30</sup>

A form of central bank involvement, which carries less moral hazard implications than the provision of liquidity, consists of the central bank acting as a co-ordinator to facilitate private sector solutions. Even when there is a clear private sector interest in avoiding a liquidity crisis or a gridlock situation, private parties may not be able to reach such a solution because of a lack of information or co-ordination. The recent rescue package co-ordinated by the Federal Reserve Bank of New York to prevent the LTCM hedge fund from collapsing is a telling example of public intervention being used to achieve a private solution.

The rationale for, and effectiveness of, the role played by central banks also derive from the fact that they have the special expertise, information and tools necessary to perform co-ordination and liquidity support functions. Central banks have been confronted for two centuries with the problem of distinguishing between illiquid and insolvent institutions. Moreover, to avoid destroying incentives for banks to monitor each other and to limit moral hazard, a consensus seems to exist that liquidity assistance should be given only to prevent financial instability and only to the smallest possible degree.

To sum up, there is clear empirical and theoretical evidence that, at times, public intervention may be required to ensure financial stability. Banking is indeed a business plagued by an inherent instability, which cannot be removed if its economic benefits are to be realised. Moreover, the banking industry operates as a closely inter-linked “system”, which is prone to contagion through the payment system and interbank markets. The involvement of central banks in financial stability is rooted in their role as issuers of money. Central banks –

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<sup>28</sup> See Santillán et al. (2000).

<sup>29</sup> See, for example, Goodfriend and King (1988).

<sup>30</sup> See Rochet and Tirole (1996) for an analysis showing the possibility of such a market failure. In addition, Flannery (1996) shows that high uncertainty associated with a crisis makes it more difficult for banks to estimate counterparty credit risk, and this may cause them to withdraw from the interbank market altogether.

like any soundly managed financial institution – need to monitor the quality of their counterparties. This is in addition to their role as ultimate providers of a safe settlement medium and liquidity to ensure the orderly functioning of the financial system.<sup>31</sup> It should be noted once more that these two special reasons for their involvement in financial stability are independent of whether or not central banks have formal supervisory functions.

#### 4. Crises: Old Patterns...

So far, we have reviewed the historical and theoretical foundations of the role of central banks in financial stability. Indeed, many central banks were established to serve as bulwarks against episodes of financial instability that had been the endemic disease of the “free banking era”. However, the establishment of central banks has not made financial system immune to instability, and banking and financial crises have continued to occur. Crises have actually become more frequent once the highly restrictive and efficiency-absorbing regulations introduced after the Great Depression were dismantled. Moreover, the disease has taken new forms as a consequence of the ongoing transformation of the financial system. This in turn has consequences for the role of central banks and the policies best suited to preserve financial stability.

This and the next Section will examine a number of crises, which occurred since the liberalisation process, grouping them into “old” and “new” with reference to the changes in the financial system. The labels “old” and “new” are used as an expositional device. They are not meant to say that the more traditional sources of financial instability (such as credit risks related to financial cycles) have become less relevant, but rather that the transformation of the financial system has brought about additional concerns. While the transformation of the financial system can be seen as global, its speed has been different across the world. For this reason, the episodes of financial instability will be ordered by cause rather than chronologically.

For the sake of a stylised description, we can say that the “old” financial system was characterised by separation in four respects.<sup>32</sup> Firstly, there was separation between institutions and markets. Negotiable assets were a negligible part of the balance sheet of banks and insurance companies. Notably, the exposure of banks to market volatility was limited, as they largely focussed on the transformation of deposits into illiquid loans. Secondly, there was separation between the three main categories of financial intermediaries (banks, insurance companies and securities houses or broker-dealers), as well as between the products they managed. Non-negotiable bank loans, insurance policies and negotiable securities provided distinct ways of allocating savings and risks, each of them related to a different basic financial contract. Thirdly, there was separation in the regulatory and supervisory structure, to reflect the tripartition between both financial products and financial intermediaries. The oversight of markets was conducted by a separate entity from the one supervising financial institutions, and banks faced a different supervisor than insurance companies. Perhaps more importantly, supervisory instruments differed substantially across sectors even when risks were analogous. Fourthly, domestic financial systems tended to be

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<sup>31</sup> There seems to be evidence that a properly implemented liquidity support function of a central bank, accompanied by sufficiently stringent supervision, has a positive effect on financial stability. See Miron (1986).

<sup>32</sup> See Padoa-Schioppa (2002b).

insulated from one another. Normally, in the “old” world of finance the different elements of financial transactions, the intermediary, the currency, the central bank, the legislation applied, the court that would be addressed in case of litigation, the language, all belonged to the same country. Links between financial systems were tenuous and most countries fenced their national system with various types of barriers, which were encouraged by the Bretton Woods institutions.

These features of the “old” finance were consistent with, and made possible by, the technological environment. The basic technology used in the financial world was based on paper and mail, with telex and telephones used for fast communication. Such technology was put in place towards the end of the nineteenth century and remained dominant until the 1970s. It permitted a number of regulations and segmentations whose effectiveness was subsequently wiped out by the advent of modern information and communication technology (ICT).

The “old” system was susceptible to a type of crisis, which is illustrated by a number of episodes that occurred in the last quarter century. Latin America (early 1980s), the U.S. Savings and Loans (early 1980s), and the three Nordic banking crises of Finland, Norway and Sweden (early 1990s) are the most relevant ones.<sup>33</sup> Similar crises also took place in several emerging and developing countries in the 1990s, such as Brazil (1994), Thailand, Korea, and the Philippines (1997-98). In some cases, the crisis was confined to few or to individual institutions. In Europe relevant episodes are Banesto (1993), Credit Lyonnais (1994), and the banks in southern Italy (mid to late 1990s).

In Latin America, a banking crisis followed the debt crisis of the early 1980s, which resulted from the previous rapid accumulation of credit granted by U.S. banks. Argentina, Chile and Mexico had a full-blown crisis in 1980-82. In Argentina 9% of loans were non-performing in 1980 (30% in 1985) and 168 banks were closed. In Chile, 19% of loans were non-performing in 1983 and the authorities intervened in 13 banks. In Mexico, the government had to take over the troubled banking sector in 1982.

The U.S. Savings and Loans crisis had its origins in the rapid increase in nominal interest rates resulting from the monetary policy tightening in the late 1970s and early 1980s. These institutions were exposed to interest rate risk, because the majority of their assets were invested in fixed-rate, low-yielding mortgages. As interest rates rose to record levels, Savings and Loan institutions were confronted with sharply rising funding costs and diminishing profits. Many institutions lost their net worth and engaged in excessive risk taking, investing heavily in risky commercial real estate projects (“gambling for resurrection”), which resulted in bank failures when the real estate boom came crashing down in certain parts of the country.

Finally, the Nordic banking crises were a consequence of very rapid credit expansion, made possible by the deregulation of foreign capital inflows and restrictions on banks’ assets, which dangerously propped-up asset prices and the indebtedness of the domestic non-financial sectors. Credit was often denominated in foreign currencies, which resulted in unhedged foreign exchange risk positions. The level of non-performing loans was highest in Finland, reaching 13% of total loans in 1992.

All in all, these crises followed a fairly consistent, although not always predictable pattern. Deregulation of banking restrictions and capital controls led to a lending boom. Asset prices

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<sup>33</sup> See, for example, Goodhart et al. (1998), Drees and Parsabasioglu (1998) (Nordic crises), and White (1991) (US S&L crisis).

rose, particularly in real estate. A turn in the business cycle and asset price shocks (mainly real estate price and exchange rate shocks) were then followed by large-scale bank failures. It is noteworthy that crises affected banks, not financial markets or non-bank financial institutions. Financial instability generally resulted from credit risks. In the new environment that emerged from deregulation and liberalisation, both the risk management techniques of banks and the supervisory practices of public agencies proved inadequate to cope with traditional banking risks.

The pattern of crisis resolution was also rather similar across countries, not least in that the role of central banks was relatively limited in comparison with the role of the government and its agencies.<sup>34</sup> While in most cases some initial liquidity support or bridging loans was provided by central banks, it was often clear from the outset that the problem was insolvency rather than illiquidity. The success of the crisis-resolution varied. For instance, Argentina's crisis in the early 1980s resulted in high inflation and disintermediation, whereas in Chile it led to a strengthened financial system.

## 5. ...and New Ones

While there should be no illusion that the "old" type of financial distress will not re-occur in the future, one could argue that the "new" financial system brings to prominence new sources of instability. Recent changes in the financial structure can be summarised by the breakdown of the separations that characterised the "old" system.

The two first separations – between financial institutions and markets and between the three traditional sectors of finance – have been replaced by an increasing integration of markets with banks, and of banks with other financial institutions. Integration has been the outcome of a search for more flexible and effective ways to transform savings into investments. Securitisation and the development of credit risk transfer are important aspects of this development, as they allow the re-allocation of credit risk to the agents best suited to bear it. Such developments may also be seen as a market response to the previous crises, aiming at better risk diversification. For instance, the Latin American crises acted as a boost to the development of the secondary markets for credit instruments.

Corresponding changes have occurred in the supervisory structures, breaking down the separation between sectors and some differences between supervisory instruments. Many countries have integrated the supervision of different financial institutions and have switched from strict "command and control" to incentive-based supervision (supporting the development of risk management practices). These goals are central, for instance, in the current revision of the capital adequacy rules. International co-operation among supervisors has also developed. The Basel Committee on Banking Supervision has actually been the forum where many of the new approaches to prudential supervision were first devised and adopted.

The move from "old" to "new" finance has been closely linked to a breaking down of the fourth separation, the one between national financial systems. National markets are no longer isolated entities, rather they are embedded in a complex system of interlinkages, which calls for close international co-operation.

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<sup>34</sup> First, governments typically gave a blanket guarantee that all banks would meet their obligations. Second, insolvent banks were either temporarily nationalised or forcibly merged, with "bad loans" being transferred to a state agency. See, for example for Sweden, Englund (1999), and Ingves and Lind (1996).

Key for all these developments has been the profound change in the technology underlying financial activity. The move from the “paper-mail” technology to ICT that has marked the last quarter century has permitted to circumvent many regulatory barriers to the point of eventually entailing their abolition. By spreading information world-wide in real time and by connecting markets, it has made possible the emergence of trading “round-the-clock”. It has provided the instrument for constructing new financial products and for unbundling the old ones into different components that could be traded separately. By allowing a direct contact between the two sides of a financial transaction it has revolutionised, and to a certain extent even made superfluous, the services of financial intermediaries.

Four important new potential sources of disturbances can be identified that are closely related to this changed environment. First, a rapid increase in banks’ financial market-related activities has heightened their exposure to the vagaries of markets, implying that bank stability may be increasingly vulnerable to market instability. Second, the greater prominence of markets has implied that financial instability may emanate also from non-bank financial institutions, should the banking system and the liquidity redistribution function be affected by an exposure to these institutions. Third, liquidity conditions and contagion risks may play an increasingly important role. Whereas the liquidity of markets may have increased and institutions’ access to liquidity improved in tranquil times, during a crisis liquidity has a tendency to dry up more rapidly. Fourth, large value payments traffic has grown exponentially and clearing and settlement systems – operating under the principle of net settlement – have emerged outside central banks, which has increased payment system-related risks. The following paragraphs will examine in more detail these changes in the light of the crises we have already witnessed.

The exposure of banks to financial market developments – the first new potential source of instability – has grown as a result of several structural factors. Private capital markets and the associated derivatives markets have so substantially deepened over the years that banks have been stimulated to participate in the market. Meanwhile, the increase in household wealth has increased the propensity of individuals to invest in securities and the development of supplementary pension schemes has also boosted the demand for marketable assets. This movement has been particularly pronounced in the euro area, where bank deposits, which used to have the dominant share in households’ assets, have now declined considerably below the share of direct or indirect security investments (via collective investment schemes). These demand-side developments have opened up opportunities for firms to diversify funding sources, to reduce funding costs by issuing securities, and to finance corporate restructuring from capital markets.<sup>35</sup>

Banks have been able to exploit their extensive retail distribution networks to reach investors, in particular in Europe, offering a full range of mutual funds and brokerage services. European banks have also developed strong investment banking services, with some of them now acting as global investment banks in competition with US institutions. Banks have also undertaken significant trading activities of their own. Until the middle of 2000, as the market conditions were very favourable, the growth in securities-related activities has

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<sup>35</sup> Between 1995 and 2000, i.e. before the recent market turmoil, capital market transactions by companies in the euro area increased substantially. In this period bond issuance grew at its fastest rate ever, resulting in issue volumes growing by a factor of 10 over the period, and the boom continued through 2001.

boosted non-interest income from fees and commissions.<sup>36</sup> In 2000, i.e. before the stock market fall, consolidated non-interest income accounted for 57% of the total net income of the 50 largest euro area banks (in 1995 the share was below 30%).

The other side of this coin is that the vulnerability of banks to financial market developments has increased, as witnessed by a number of episodes. Barings is a good illustration. Whereas inadequate internal controls can of course lead to problems also in the more traditional lending business, the speed at which one “rogue trader” was able to take a huge position is only possible in modern securities and derivative markets. Barings also highlights the importance of taking a decision on the systemic nature of a bank failure in an extremely short lapse of time.<sup>37</sup> On the afternoon of Friday 24 February 1995, the bank’s senior management notified the Bank of England that its securities subsidiary in Singapore had made large losses in Japanese financial markets. Barings requested the Bank of England’s support in winding down its activities. The decision on whether or not to support Barings had to be made by the time trading started in Japan on the Monday morning local time, since insolvent institutions are not allowed to trade. The decision not to start a rescue was founded on the assessment that a failure of Barings would not threaten stability in the UK or the global financial system. Parties with a potential interest in seeing Barings continue operation were therefore invited to bid for a take-over. While no direct support was provided, the Bank of England announced a willingness to provide liquidity to the UK banking system as a whole in order to smooth out the repercussions of the failure.

The failures of two Japanese securities houses in 1997 illustrate the second source of risks, related to non-bank financial institutions. The first, Sanyo, failed in November 1997. Sanyo was a medium-sized securities house with client assets of JPY 2.7 trillion. While the Bank of Japan initially assessed the failure as having few systemic implications, when Sanyo defaulted on its unsecured money market obligations (although the amount was relatively small) there was a substantial negative impact on overall liquidity in the interbank market. The Bank of Japan was eventually forced to inject liquidity into banks via the purchase of eligible bills, repos and bilateral lending against collateral. The second failure occurred three weeks later and was similar, albeit more serious. It involved Yamaichi Securities, the fourth largest securities house in Japan with client assets in excess of JPY 22 trillion. No doubt due to the lessons learnt in the Sanyo case, Yamaichi was allowed to continue in operation to settle its existing contracts. The authorities were also faced with the difficult question of whether the Bank of Japan would be permitted to provide direct emergency liquidity to the company, which it did in the end.<sup>38</sup>

Systemic concerns about non-bank financial institutions have been linked with concerns about the impact on the banking sector. Another issue is whether the failure of an independent securities firm could by itself be a source of risk to financial stability even if banks were not affected. Here my conclusion would be negative. I would subscribe to the traditional view that financial stability could be at stake only insofar as shocks transmit to the banking sector. The episodes of turbulence over recent years suggest that difficulties assume systemic relevance only when the banking system and the liquidity re-distribution mechanism are hit. When turbulence occurred outside the banking system, it could be managed as long as banks were in a position to support the liquidity needs of other intermediaries.

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<sup>36</sup> The ECB (2000a) highlights a longer-term trend towards an increased share of non-interest income for EU banks.

<sup>37</sup> See Board of Banking Supervisors (1995).

<sup>38</sup> See Nakaso (2001) for further details.

Liquidity conditions and contagion are the third source of instability related to the new developments in the financial system. Actually, in the two Japanese cases, financial distress spread through money markets. The interbank links were the source of concern also in the United Kingdom's "small bank crisis" of 1991-92.<sup>39</sup> Foreign banks in particular, growing increasingly concerned about the UK property price decline, reduced their exposure to UK banks. The Bank of England used its close ties to financial markets and to the large clearing banks to acquire quantitative and qualitative information about the affected banks and to assess the likelihood of a systemic impact. At first, some failures were tolerated, but soon it became apparent that many simultaneous failures of small banks could have systemic implications. Thus, when the National Mortgage Bank and some other banks ran into liquidity problems in late 1991, the Bank of England decided to provide emergency liquidity assistance.

Continental Illinois (which was the seventh largest US bank at the time of its failure in 1984) provides another early example of a liquidity crisis, due to an outflow of wholesale deposits.<sup>40</sup> A run by such depositors was caused by rumours that the bank would fail because of its Mexican exposures. In view of Continental's size and function as a money centre bank, public support operations, involving the central bank and the deposit insurance agency, were undertaken. As in the "small bank crisis", the underlying problem was illiquidity rather than insolvency.<sup>41</sup>

Market liquidity outside interbank money markets is also important for financial stability. The failure of the Drexel Burnham Lambert Group and the collapse of the market for lower-grade bonds in late 1980s, and the collapse of the market for perpetual floating rate notes in the mid-1980s are early examples.<sup>42</sup> More recently, the Russia/LTCM crisis of 1998 has shown that not only relatively specialised markets with a concentrated structure are subject to abrupt declines in liquidity, even though perhaps they are more likely to be so. All these crises resulted in a substantial decline in liquidity in global corporate and emerging country bond markets. Moreover, the LTCM incidence highlighted the risk that a disorderly failure of a major securities player could severely depress prices in illiquid markets and lead to contagion via market prices. Prices could fall to a point where other institutions holding important risk concentrations in the same markets would also incur major losses.<sup>43</sup>

All in all, these episodes point to three conclusions. First, while runs by retail depositors may have become a rare event and can be effectively prevented by deposit insurance, runs by

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<sup>39</sup> While the main business of the affected banks was retail lending, most of the banks were heavily reliant on wholesale funding. Their capital ratios were exceedingly high; the median capital ratio of the banks that would subsequently fail was 26%. Nevertheless, the recession of the early 1990s and declining property prices resulted in high pressure on these banks. See Logan (2001).

<sup>40</sup> One of the triggers of this crisis was the earlier failure of Penn Square in 1982. The authorities had adopted a "pay-out" strategy, which implied that all creditors apart from insured depositors would lose their money. The heightened concerns of depositors resulting from this and Continental's aggressive growth increasingly led to funding problems from wholesale deposits, upon which it relied.

<sup>41</sup> In fact, at the time of its closure, Continental Illinois' net worth was over \$2 billion. See FDIC (1998), Wall and Peterson (1990), and Jayanti and Whyte (1996) for more information on the event.

<sup>42</sup> As liquidity in the secondary market for low-grade bonds suddenly deteriorated following rumours about a change in regulations, which would have greatly reduced the attractiveness of the market, Drexel found it difficult to manage its liquidity through asset sales or collateralised loans. See Allen and Herring (2001).

<sup>43</sup> In the LTCM case, financial stability concerns were perhaps related more to this type of contagion than to traditional credit exposures of banks to LTCM through money market instruments and other lending. This can be inferred from the statements made at the time by Fed Chairman Alan Greenspan and President McDonough.

wholesale depositors (other banks or firms) may have become more important. Second, financial market liquidity has gained substantially in importance. The deepening of the markets has improved the ability of banks to access funds in normal times, but liquidity may be more prone to dry up when it is most needed. Third, contagion risk via interbank money markets as well as other financial markets has become a substantial component of the overall risk environment surrounding a bank.

Payment system related risks are the fourth potential source of instability. Such risks are mainly related to the increases in the sheer volume of transactions, to structural changes in the systems, and to increased cross-border financial activity.

As financial market transactions have dramatically increased, payment volumes have increased correspondingly.<sup>44</sup> In order to cope with the increased volumes, private systems for the settlement of payments have emerged, such as CHIPS in the 1970s, a private US clearinghouse that settles on a multilateral netting basis.

In a multilateral netting system, commitments to transfer funds at settlement time usually accumulate during the day and each participant transfers only its net position vis-à-vis all the other participants at the end of the day. This implies, however, that each participating bank extends intraday credit and thus runs settlement risks (with regard to both credit and liquidity risks) vis-à-vis other participants in the system, not necessarily only its trading counterparties. The standards developed by central banks (see Section 10) for large-value netting systems enable such systems to withstand the failure of the largest participant and to settle on the same day even in such circumstances. In addition, central banks all over the world have put in place gross settlement systems, providing real-time finality of payments, thus eliminating the risk associated to netting procedures.

Increased cross-border financial activity has largely taken the form of an expansion of exchange trading. The settlement of foreign exchange (FX) transactions typically involves a principal risk because one party might pay out the currency it has sold before receiving the currency it has bought. Indeed, the settlement of the two legs of FX transactions occurs in two different payment systems, often operating in different time zones. The potential systemic implications of FX settlement risk surfaced for the first time when a German bank, Bankhaus Herstatt, failed in 1974.<sup>45</sup> Although central banks have been concerned ever since about what came to be called Herstatt risk, it took 28 years for this risk to be fundamentally addressed. In 2002, a new settlement arrangement (the CLS bank) became operational – at first in limited capacity. It ensures that the final transfer of one currency occurs if and only if the final transfer of the other currency occurs.

The vulnerability of the financial system may also be due to operational causes (so-called operational risk), mainly the vulnerability originating from payment and settlement systems. In 1985, a pure software disruption at the Bank of New York caused a major payment system

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<sup>44</sup> In 2001, the combined average daily turnover of the two largest US systems, Fedwire and CHIPS, exceeded USD 2.8 trillion. The relatively new European system, TARGET, now processes around €1.6 trillion per day, three times the amount that all large-value payment systems in the 12 euro area countries processed together in 1990.

<sup>45</sup> Herstatt was heavily involved in FX transactions. When the German authorities closed Herstatt, it had very large amounts of outstanding intraday debt, especially vis-à-vis its US counterparties, who because of the time difference had already irrevocably paid Deutsche Mark to Herstatt, but had not yet received the corresponding US dollars. The liquidity losses in the American markets were so large that liquidity assistance became necessary.

problem, which had to be addressed by the Federal Reserve Bank of New York. After the attack of 11 September 2001, the telephone system, the major communications tool in the transfer of payments, was severely disrupted in the lower Manhattan district. As a consequence, many banks were unable to execute payments to each other via Fedwire, and liquidity became extremely scarce.<sup>46</sup> At the same time, the Bank of New York, a dominant player in the settlement of US government bonds with several offices located in and around the World Trade Centre, was unable to continue operations. Because it was not sending out securities, liquidity accumulated in the accounts of the Bank of New York, causing further disruptions to the payment system. To avoid a major liquidity crisis, the Federal Reserve injected vast amounts of liquidity, first through discount window lending and later through market operations.

All the episodes reviewed in this section point to the active role played by central banks in safeguarding financial stability when a crisis occurs. This is largely due to concerns about liquidity, contagion and payment system risks. Section 2 focused on the origin of central banks, showing that they were created to protect against the fragility and risks stemming from the banking and financial system of the nineteenth and early twentieth centuries. Instead, the episodes reviewed in this section relate to the most recent history of banks and central banks. As a matter of fact, recent developments seem to have reinforced, rather than weakened the original role of central banks as ultimate providers of liquidity to facilitate orderly market conditions and, if needed for financial stability, to neutralise threats of liquidity shortages.

## **6. The Land in Between...**

The preceding sections have surveyed the role played by central banks for the preservation of financial stability. This role has appeared to be rooted in the very origin of central banks, confirmed by their long history, and based on solid theoretical arguments. Despite the new challenges brought about by recent developments, which are visible in most of the episodes of financial instability that plagued the last quarter of the twentieth century, this active role has continued.<sup>47</sup>

The remaining task is to discuss how this role fits in today's central banking. In a world where – as it has become more and more frequent – the central bank has the assigned objective of price stability and prudential supervision is entrusted to a separate agency, the three functions of monetary policy, financial stability and prudential supervision no longer form a single composite. The composite has been unbundled. And central bank involvement in financial stability constitutes “a land in between”, whose boundaries, morphology, and relationships with adjacent lands need to be considered anew.

The difficulty of the task results from the lack of a clearly established analytical and operational framework for financial stability. This is in contrast to the clear terms of reference available for both monetary policy and prudential supervision. In the case of monetary policy, we can rely on a large body of academic research and a clearly defined framework with

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<sup>46</sup> See McAndrews and Potter (2002).

<sup>47</sup> Indeed, many central banks – including the Eurosystem – have an explicit reference to financial stability inscribed in their statutes. Recent work by the BIS shows that even those central banks that do not have an explicit mandate consider the pursuit of systemic stability and the stability of the payment and settlement systems as one of their key duties. When there is no explicit mandate, the legal basis for central bank responsibility for financial stability is often found in interpretations of central bank law, or sometimes banking law.

measurable objectives and tools. Furthermore, we have established decision-making procedures and communication protocols. For prudential supervision, which had long been neglected by academic research and left to practitioners and legal experts, important contributions over the last two decades have laid the foundation for a more rigorous understanding of its rationale and tools.

This and the following two sections represent an attempt to clarify the position and tools of the financial stability function of central banks in relation to monetary policy and prudential supervision. Without having the ambition to be comprehensive or to give precise policy prescriptions, it proposes some elements to draw a road map for exploring the subject further. After defining financial stability and outlining the related tools and actions, the interplay and overlap of such actions with monetary policy and prudential supervision will be discussed.

Let's start with a working definition of financial stability. It is striking that although a number of central banks regularly publish financial stability reports, they tend either to avoid the question of how to define financial stability entirely (e.g. the Bank of England) or to explicitly acknowledge the elusiveness of a consistent definition (e.g. the Austrian National Bank). In general, the core economic function of the financial system consists in channelling savings into investments and providing for an efficient and safe payment mechanism. Along these lines, I would suggest defining financial stability as a condition where the financial system is able to withstand shocks without giving way to cumulative processes which impairs the allocation of savings to investment opportunities and the processing of payments in the economy.

The definition immediately raises the related question of defining the financial system. In this essay, I adopt a broad definition, whereby the financial system consists of all financial intermediaries, organised and informal markets, payments and settlement circuits, technical infrastructures supporting financial activity, legal and regulatory provisions, supervisory agencies. This definition permits a complete view of the ways in which savings are channelled towards investment opportunities, information is disseminated and processed, risk is shared among economic agents, and payments are facilitated across the economy.

This broad definition does not contradict the earlier contention that banks are special in the sense that their failure could lead to systemic instability, which is also the justification for the specific safety net. Nor does it imply disregarding the importance of non-financial sector imbalances (corporate and household sector leverage, for instance), problems of non-bank financial institutions, and asset prices for the robustness of the financial system. As previous experiences amply demonstrate, such financial imbalances or disturbances have often preceded and indeed caused bank failures and financial crises, although they did not always do so. A forward-looking assessment of financial stability should of course duly consider these aspects.

To clarify the tools available for the pursuit of financial stability in the "land in between", it helps starting from a broad list of tools. Table 1 includes all the tools that – irrespective of the institution to which they are assigned – are potentially playing a role in this regard, relating them to the objectives of price stability and financial stability.<sup>48</sup> The table further

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<sup>48</sup> The term "tool" here refers broadly to the possible actions and procedures available to competent public authorities. I omit here discussion of any restructuring and government financial support measures in order to focus on the interplay of central banks' financial stability tools with monetary policy and supervisory measures.

Table 1: Tools for maintaining price and financial stability

Tool	Price stability	Financial stability	
		System-wide	Individual institutions
1. Monetary policy strategy	××	×	
2. Short-term interest rates	××	×	
3. Money market operations	××	×	
4. Standing facilities	××	×	×
5. Payment systems		××	
6. Public and private comments	××	⊗	⊗
7. Emergency liquidity support		××	××
8. Crisis co-ordination		⊗	⊗⊗
9. Prudential regulation		○	○○
10. Prudential supervision		○	○○

Legend: two symbols (e.g. ××) = primary use of the tool; one symbol (e.g. ×) = additional use of the tool; × = tool of a central bank without supervisory powers; ○ = tool in the hands of an authority other than the central bank; ⊗ tool available for both.

distinguishes between tools immediately affecting the stability of the system as a whole and tools aimed at the stability of individual financial institutions. In order to highlight a “pure central bank perspective” of financial stability, it assumes that the agency in charge of prudential supervision is not the central bank, although the taxonomy of the policy instruments as such is quite independent of the specific institutional arrangements. The table is intended to be descriptive, rather than normative, i.e. it illustrates conceivable approaches, rather than making policy prescriptions.

The table is an attempt to be as precise as possible on an issue where precision is elusive. It can not avoid putting together such diverse and heterogeneous objects as institutions (central bank, supervisory authority), policy instruments (interest rates, market operations, etc.), operational arrangements (payment systems). Indeed, this very heterogeneity is indispensable to map the total territory where the land in between lies.

The first four lines (monetary policy strategy, short-term interest rates, market operations, and standing facilities<sup>49</sup>), combined with commenting (either to the public at large or, in private, to financial institutions or other authorities) primarily relate to central bank actions aiming at achieving price stability. At the same time, prudential supervision and regulation, while ultimately concerned with financial stability, influences the behaviour of individual institutions.<sup>50</sup> That leaves four tools in the “land in between”: payment systems (operation and standards); the crisis management measures of emergency liquidity support and co-ordination of private sector solutions; and, again, public and private comments. These entries represent the “dedicated” tools available to a central bank without explicit supervisory duties

<sup>49</sup> The usual distinction is made between money market operations, which are undertaken at the initiative of the central bank, and standing facilities, which are used at the initiative of banks.

<sup>50</sup> One has to be quite careful here: the stability of individual banks is not an objective of either central banks or supervisors, if a bank failure has no systemic implications. Nevertheless, the supervision of individual banks clearly serves the objective of the stability of the financial system as a whole, but at the same time, while necessary, is not sufficient to achieve the ultimate goal of overall financial stability.

to contribute to financial stability. Thus, these tools facilitate the role of central banks in financial stability fundamentally rooted in the two aspects previously highlighted of being the bankers' bank and the ultimate provider of liquidity.

It should be noted that the term emergency liquidity support includes actions to support liquidity in the financial system as a whole (through market operations) as well as emergency liquidity assistance to individual banks (lending of last resort). Finally, the table reflects the fact that financial stability considerations are taken into account when designing the monetary policy strategy, the payment system, and the regulatory, supervisory and crisis management frameworks.

The fact that price stability and financial stability need to be reconciled is immediately obvious from Table 1, which shows the potential for conflict arising from the overlap in tools (short-term interest rates and market operations can conceivably be used to accomplish both price stability and financial stability). Equally obvious is the need for close co-operation between the central bank and the supervisory agency in financial stability activities, given that they ultimately pursue the same objective, albeit with different tools.

The next two sections will be devoted to further defining the boundaries of the financial stability function in relation, first, to price stability and, second, to the actions addressing the stability of individual financial institutions. The specific features of the different tools will be discussed in Section 10, focusing on the euro area context.

## 7. ...Monetary Policy...

Consider the potential conflict between price stability and financial stability. Such a conflict would emerge if there were circumstances in which the monetary policy stance required to maintain price stability (as reflected in short-term interest rates and market operations) were to harm the stability of the financial system.

A forceful argument supporting the view that such a conflict is unlikely to exist is that the absence of stable prices – in the form of either inflation or deflation – is a major threat to financial stability. When price inflation develops, misperceptions about the current state of the economy and the level of future returns are likely to spread among economic agents, and unproductive lending will increase, because inflation makes it more difficult for lenders to discern the quality of borrowers and projects. As to deflation, it tends to trigger a vicious circle where an increasing real value of debt leads to further defaults. Some observers have further suggested that financial crises may have been caused by deflationary pressures not sufficiently combated by central banks through the supply of liquidity.<sup>51</sup>

Overall, there is little doubt that price stability supports sound investment and sustainable growth, which in turn is conducive to financial stability.<sup>52</sup> The suggestion that large price movements can cause financial instability is supported by evidence from major financial crises. All in all, since the fragility of banks and their counterparties tends to be more frequent when prices are unstable, the pursuit of price stability can be seen as a crucial contribution to financial stability.

Some day-to-day monetary policy tools, in fact, are to a significant extent associated with financial stability considerations. In the case of the Eurosystem, for example, the lending and deposit facilities at the central bank (i.e. standing facilities) provide upper and lower bounds for money market rate fluctuations and give individual institutions a means to deal with end-

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<sup>51</sup> See e.g. Schwartz (1995), and Bordo and Wheelock (1998).

<sup>52</sup> See Schwartz (1995).

of-day liquidity imbalances. Also, fine-tuning money market operations, which take place at a higher frequency than interest rate decisions, are intended to reduce the volatility of short-term interest rates and to ensure smooth provision of liquidity. These operations are primarily aimed at providing sufficient liquidity to the money market and at facilitating an orderly liquidity management by individual banks. In the jargon of the past, this was generally referred to as maintaining “orderly market conditions.”

Having said this, it would be simplistic to close the issue here and to rely, without any further reflection, on the reassuring proposition that price and financial stability cannot and do not ever conflict. A few considerations make me unsatisfied with this perfunctory conclusion.

Firstly, it is a fact that significant episodes of financial crises – or situations that could have easily led to crises – took place in the last two or three decades in a context of overall price stability. For example, the Japanese banking problems started to emerge in the early 1990s, resulting from a lending-asset price cycle that took place despite low inflation. Important individual failures (e.g. BCCI, Barings, Credit Lyonnais, Yamaichi) have occurred in the presence of price stability. The example of Japan suggests a further reflection. Even though it is always easier to comment on policy *ex post* than making it on the spot, one could consider that in the late 1980s monetary policy underestimated the risk of domestic inflation. In 1988, the short-term inflation forecast looked very benign, but a more forward-looking approach would have highlighted the risks of inflation stemming from the strong growth in the money supply. Double-digit money supply growth rates and booming real estate and equity prices helped to fuel the bubble. A tighter monetary policy, thereby accepting for a short period a lower inflation rate than normally desirable, would (most likely) have been an appropriate response.

Might the last six to seven years of US monetary history eventually turn out to be another example? The final verdict is still outstanding. Should the Fed have raised the federal funds rate more aggressively between early 1999 and May 2000 in order to increase the likelihood of bursting what later appeared to have been a bubble?<sup>53</sup> In that case, the Fed would have had to accept a lower inflation rate than originally targeted until the bubble had burst. Would the US economy and thus the world economy have been in a better shape in 2001 and 2002? Honestly, no one knows for sure, but no central banker can avoid contemplating the possibility.

Recently, some authors have pushed the critique of the “no conflict view” to the point of arguing that the regime of low and stable inflation could even create “false sense of security” and generate myopic short-sighted expectations, which lead to financial instability.<sup>54</sup> I would downplay the importance of this danger. What I would conclude, instead, is that the historical evidence does not support the belief that an environment of stable prices relegates financial instability to such a low order of importance as to be ignored by the central bank. While both inflation and deflation are detrimental to financial stability, price stability is certainly not a sufficient condition for financial stability.

Secondly, even a central bank having price stability as its explicit primary objective is likely to be, in the short-term, above or below its inflation target. It adjusts its policy rate on the basis of an assessment of future price developments, which is inevitably subject to uncertainty. If, for example, the central bank assigns a relatively high probability to financial

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<sup>53</sup> The Fed increased interest rates by 175 basis points from 4.75% to 6.50% during the period.

<sup>54</sup> See Blinder (1999), Crockett (2000a), and Vinals (2001).

instability and presumes that such instability is associated with deflationary tendencies, it may accept higher inflation in the short-term. Policy dilemmas lurk precisely in the shadows between the short, the medium and the long-term; not to mention, of course, Keynes' aphorism about death before the long-term. The point is that a clear mandate and a clear strategy for monetary policy are not sufficient to determine what the central bank should decide when a particular situation arises, and indeed allow for genuine discussions, diverse views and disagreements on the best decision to take in any given circumstances. Even less are they sufficient to determine the exact weighting of financial stability considerations against other considerations. Ultimately, the substantive issue is, in the analysis, the relationship between financial and price stability and, in the decision, the weight to be given to financial stability considerations.

A closely related issue is the argument that a smooth path of interest rates is propitious to financial stability.<sup>55</sup> The argument is based on the maturity transformation function of banks, whereby they convert variable rate liabilities into fixed-rate assets. Of course, if the central bank were to interpret its responsibility for financial stability as implying that it must smooth interest rates, a trade-off with the objective of price stability would easily arise. To the extent to which different monetary policy frameworks entail different volatility of central bank rates, the choice of the monetary policy framework has, per se, implications for financial stability.<sup>56</sup>

Thirdly, in a context of general price stability there may be sectors or regions of the economy subject to a price shock, which in turn may cause a financial crisis of sufficient proportions to entail systemic risk. The overall price index considered by monetary policy may not signal a significant deviation from price stability, but a more circumscribed observation may reveal a situation in which both price and financial stability are seriously threatened. At this *local* level the positive correlation between price stability and financial stability may not be violated, but it runs in the opposite direction from the one prevailing at the *general* level. Such asymmetric shocks are, of course, fully contemplated in a properly designed monetary policy framework, but this may not be of much help when they arise and decisions are needed.

Fourthly and finally, even if it is true that an environment of stable prices is more propitious to financial stability than either inflation or deflation, the question remains whether conflicts may arise when the economy is *moving* towards price stability. Particularly in the transition towards a regime of low inflation, the potentially high real interest rates associated with such a disinflationary process may impose a great burden on financial institutions. Some evidence actually suggests that a number of financial crises were caused by a sharp increase in short-term interest rates necessitated by price stability considerations. The increase in interest rates impinged on banks in the money market by suddenly increasing their funding cost. Although in the longer-term, this effect could vanish as banks can pass-on the increased funding cost to their borrowers, upon impact this has led in the past to disruptions in the banking system.<sup>57</sup>

Hence, situations where the objective of maintaining, or perhaps restoring, price stability demands a policy response, which is not compatible with financial stability, do have fairly

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<sup>55</sup> See, for example, Cukierman (1990).

<sup>56</sup> High volatility of interest rates is a distinguishing feature of monetary policy frameworks characterised by exchange rate or monetary base targeting. Inflation targeting, on the other hand, seems to be more compatible with a high degree of interest rate smoothing.

<sup>57</sup> See Mishkin (1997).

robust theoretical underpinnings.<sup>58</sup> However, empirically, these occasions appear to be quite rare, which is mainly due to the strong link between recessions and financial crises.

A special reflection needs to be devoted to the relationship between asset prices, financial stability, and monetary policy. On the one hand, there is the issue of choosing the appropriate price index for monetary policy. On the other hand, it can not be ignored that large asset price movements have often been a trigger for financial crises.<sup>59</sup> Taking these two considerations to their ultimate conclusion, it may be argued that the chosen measure for inflation should include prices of financial asset. If this approach were to be implemented, central banks would directly adjust policy rates to combat asset price inflation.

However, I would concur with the view that such a direct link should be avoided, due to its serious drawbacks.<sup>60</sup> If directly linked to asset prices, monetary policy would end up being dominated and manipulated by financial markets, thus becoming volatile and unpredictable.<sup>61</sup> Moreover, it is likely that financial market participants would increase risk taking in anticipation of the central bank providing a floor for asset prices, possibly resulting in less rather than more financial stability.<sup>62</sup> Not only asset prices, but also the policy tool would strongly depend on market expectations, and the outcome for inflation could become largely arbitrary.<sup>63</sup> Furthermore, it would become exceedingly difficult – in the case of assets – to make a clear distinction between price increases and price inflation, a distinction which is of crucial importance for any monetary policy oriented to price stability. Indeed, it does not seem that the major difficulties in estimating the fundamental value of financial assets could be easily overcome, at least at present.<sup>64</sup> In view of these arguments, I would conclude that including asset prices in the policy-relevant price index would most likely lead to problems with the pursuit of price stability. In point of fact, most central banks do not include asset prices in the concept of price stability used for their monetary policy decisions.

This being understood, the issue of how a central bank should position itself with respect to changes in asset prices remains. Indeed, the question is currently much debated, partly because of the recent extraordinary vagaries of stock prices in the United States and in other parts of the world. What should a central bank do in the face of asset price changes?

The first and foremost part of the answer is straightforward. Given a price stability-oriented and forward-looking monetary policy, a central bank would be well advised to evaluate all the implications of large asset price change for future inflation. It should look at such implications both in relation to demand effects and in relation to financial stability considerations. It should adjust the policy rate in order to maintain price stability over the relevant horizon.<sup>65</sup>

The answer, however, has also a more problematic part, which concerns the occurrence of extreme movements in asset prices, combined with the proven ability of central banks to “influence” markets by commenting on and analysing current events in the economy. When an asset price – be it the exchange rate, house prices, or stock prices – grossly deviates from any plausible “normal” level, should the central bank speak up or keep silent? Should the

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<sup>58</sup> See Kent and Lowe (1997), and Brousseau and Detken (2001) for further related arguments.

<sup>59</sup> See, for example, Allen and Gale (2000b), and Kaufman (1998).

<sup>60</sup> Cecchetti, for instance, has advocated a different opinion.

<sup>61</sup> See, for example, Cukiermann (1990).

<sup>62</sup> See, for example, Goodhart and Huang (1999), and Miller et al. (2002).

<sup>63</sup> See Bernanke and Woodford (1997).

<sup>64</sup> See, for example, Issing (1998).

<sup>65</sup> See the article “The stock market and monetary policy” in the ECB Monthly Bulletin of February 2002.

famous expression “irrational exuberance” (December 1996) never have been used? Should subsequent Fed analyses, providing explanations for the extraordinary and unexpectedly prolonged “boom without inflation”, not have been made for fear they might encourage a bubble? Should the ECB have never stated that “the present level of the euro does not reflect the strong fundamentals of the euro area” (April 2000)? When does reticence pass the limits of neutrality? On the one hand, of course, the central bank should avoid driving the market as well as taking responsibility for developments it cannot really influence. On the other, however, the central bank is aware that asset markets can sometime lose the sense of direction and that overshooting and undershooting are recurrent and potentially damaging even if the equilibrium value of assets cannot be precisely determined. Undoubtedly, the central bank should be well aware of what is the rule and what is the exception, but there are circumstances in which non-interference or neutrality may be impossible and even silence speaks.

## 8. ...and Prudential Supervision

After discussing the relationship of the financial stability function with monetary policy, another boundary remains to be addressed, i.e. with the public actions, which are, in the first instance, concerned with individual bank stability. As noted earlier, this boundary is most visible when the central bank does not have explicit supervisory tasks.

Here, a distinction is commonly drawn between micro-prudential and macro-prudential concerns. The distinction focuses on the activities and the analytical approaches to measure risks, rather than really questioning the commonality of their ultimate common objective of financial stability (see Table 1). The macro-prudential dimension is usually associated with the central bank, and the micro-prudential one with the supervisory authority.

The macro-prudential dimension looks at the financial system as a whole. Accordingly, it encompasses assessment and monitoring of potential threats to financial stability arising from macroeconomic or financial market developments (common shocks) and exposures to systemic risk (contagion). This is in line with the definition of financial stability introduced earlier in the essay, as the analysis focuses on evaluating the risk of financial distress, which would be costly for the economy. The macro-prudential risk measurement approach focuses on common (possibly multiple) sources of risk for financial institutions and on the risk of correlated failures. If it looks at individual institutions, it pays attention to characteristics that may determine their significance for the financial system as a whole, such as size and links with other institutions.

In this area, the central analytical issue is to identify how much the financial system is exposed to certain risks (such as a stock market decline) and how robust the system is likely to be in absorbing shocks. Robustness depends on the availability of financial buffers (profits, reserves, and capital) in financial institutions.

A second issue, where less progress has been made, is to establish whether financial imbalances have reached an unsustainable level. While authorities cannot precisely predict the incidence of shocks, it is nevertheless important to assess potential downside risks. For instance, unambiguous evidence that an asset price bubble is emerging before it actually bursts remains subject to much controversy. Many indicators are available and can be compared against historical norms,<sup>66</sup> but it is not easy to distinguish between sound earnings expectations and unwarranted and euphoric risk taking.<sup>67</sup> Other types of financial imbalance are

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<sup>66</sup> Such as P/E ratios, equity risk premia and probability distributions derived from options prices.

<sup>67</sup> Fed Chairman Alan Greenspan (2002) recently addressed these issues, also suggesting some future avenues for identifying discrepancies between current asset prices and their fundamental values.

also difficult to assess. For example, when does lending growth, corporate and household sector leverage or the external debt position of a country reach a level, which is likely to generate financial instability? Again, the active use of indicators and the comparisons with norms derived from the past are helpful but inconclusive instruments to assess new specific cases.

Turning to the micro-prudential dimension, it focuses on the financial conditions and risks of individual institutions, also in comparison with similar institutions (“peer group analysis”).<sup>68</sup> Traditionally, it has regarded developments in macro-economic and financial market conditions as given to an individual entity. The approaches followed by supervisory authorities have not been well suited to measuring risks which are correlated or concentrated in a larger number of institutions, or which could lead to system-wide vulnerabilities. They have often disregarded the feedback effects on overall developments caused by the behaviour of individual institutions. Nowadays, supervisory authorities spend considerable resources on assessing the risks run by individual institutions from the micro-prudential perspective. There is no standardised approach, although a recent survey of supervisory risk measurement practices indicates that supervisors tend to emphasise relative, or cross-sector, risk assessment rather than system-wide assessment or time (or cyclical) variation in risk.<sup>69</sup>

The “macro-micro” distinction is common in our days. However, while the distinction has some undeniable ground, strict separation of the macro-prudential and micro-prudential dimensions would be conceptually inappropriate and could even be detrimental in practice. The distinction should not be regarded as a hard and fast concept. Fundamentally, macro and micro-prudential analyses and controls are as inseparable as two sides of the same coin. After all, both activities are concerned with the stability of the financial system as a whole, rather than the stability of individual institutions. Actually, an increasing number of supervisory authorities feel quite comfortable with the task of limiting systemic risk and preserving financial stability, rather than preserving the integrity of individual institutions. The danger of a hard separation is that it risks leading to a situation in which neither central banks nor supervisory agencies would be able to perform their functions satisfactorily.<sup>70</sup>

Firstly, to assess the safety of payment systems and other market infrastructures, as well as to be sure that their counterparties are sound and prudent institutions, central banks need micro information. If, to this purpose, they had no reliable information from supervisory sources, or if they were not fully sure that indirect information is adequate, central banks would have to put in place alternative means. Like any other bank, they could always ask their counterparties to provide them direct information. When selecting the institutions eligible to participate in monetary policy operations or in credit and payment facilities, central banks undoubtedly have both the obligation and the power to exclude institutions for whose soundness they lack sufficient assurance.

Secondly, supervisory input is important for the conduct of macro-prudential analysis and surveillance. The best results are probably achieved by combining information coming from supervisory, central bank, and market sources. Moreover, macro-prudential analysis could be very misleading if it was only focused on aggregated data and average behaviour, because averages conceal individual situations that can trigger a crisis. Indeed, significant exposures of single major institution or across institutions can be important sources of financial instability and result in the propagation of risks throughout the financial system.

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<sup>68</sup> See Borio et al. (2001).

<sup>69</sup> See Van den Bergh and Sahajwala (2000).

<sup>70</sup> Crockett (2000b), and Lamfalussy (2002) recently echoed this view.

Thirdly, central bank macro-analyses of the overall economy and of the banking and financial sectors can be valuable for supervisory agencies. These analyses are partly based on information – e.g. concerning payment systems and monetary policy operations – available to the central bank only. Past system-wide crises, such as the Scandinavian and Japanese ones, clearly indicate the relevance of the macro-dimension of financial stability, and hence the importance of macro-prudential analysis also for supervisory authorities. Indeed, as Crockett (2000b) pointed out, “*actions that may seem desirable or reasonable from the perspective of individual institutions may result in unwelcome system outcomes*”. For instance, a single bank finds it only natural to relax lending standards in an upturn, but if all banks do so an unsustainable lending boom will follow, sowing the seeds of subsequent financial instability. Only effective macro-prudential analysis can highlight overall exposures, which are relevant for the soundness of individual institutions and merit further investigation by supervisory authorities. This view has not yet been fully incorporated into the traditional micro-prudential paradigm, which tends to consider financial stability to be ensured as long as individual institutions are sound.

As regards their key tools, such as capital charges, provisioning policies, and risk limits, supervisory authorities still feel more comfortable with the micro-prudential perspective and hence tend not to use prudential tools to respond to financial system-wide or macro-economic concerns. Whether this attitude should be partially corrected, thus using such tools also to limit financial and economic cycles, is currently an important policy question. A strong counter-argument, which is made by many supervisory authorities, is that the efforts already underway to upgrade prudential safeguards should be sufficient for maintaining financial stability.<sup>71</sup> While progress in this respect has certainly been very important, it remains that potential credit and asset price cycles, as well as increased exposure by banks to financial market fluctuations, might leave scope for considering more forward-looking supervisory measures. Such measures would strengthen defences during good times by establishing reserves to be drawn upon during bad times.<sup>72</sup>

The issue of increased vulnerability of banks to economic and financial cycles has recently been addressed by many central banks, including the ECB, in the context of the Basel Accord revision.<sup>73</sup> Consensus now exists on the need to avoid strongly pro-cyclical supervisory requirements.

I would sum up the discussion of this and the previous two Sections as follows. The “land in between” does exist. The objectives and tools identified for cultivating it are significant and can be effective, albeit still less clearly perceived than for monetary policy and prudential supervision. The boundaries and synergies with adjacent lands can be outlined. The financial stability area cannot be ignored by central banks and should be the focus of further debate and research.

For a central bank concerned with financial stability, I do not see a fundamental or likely conflict with preserving price stability. In the long-term price stability is a powerful facilitator of financial stability, and is, in turn, hardly sustainable without financial stability. A

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<sup>71</sup> See, for example, the strategy formulated in the G10 and the core set of international standards available from the Financial Stability Forum ([www.fsforum.org](http://www.fsforum.org)).

<sup>72</sup> This could include adjusting capital buffers in boom periods (e.g. via stress testing), establishing forward-looking provisions against expected but yet not realised risks (“dynamic provisions”) and adopting counter-cyclical collateral valuation and loan-to-value ratios. See, for example, Borio and Lowe (2002) and Crockett (2000b).

<sup>73</sup> See ECB (2001).

successful and long-lasting price stability-oriented monetary policy is most suitable for minimising the risk of a potential conflict between price and financial stability. However, it is not by itself sufficient to ensure financial stability. A successful pursuit of price stability over the medium-term might imply accepting, in some instances, a deviation from the price stability objective in the short-term for reasons of financial stability. Although maintaining price stability is often the primary objective of a central bank, the relationship between price and financial stability is such that, in the medium-term, price stability might be even impaired if measures were not taken to address financial stability concerns in the short-term. However, since the synergy between price stability and financial stability is generally strong, situations of conflict would be rare events.

As to the relationship with prudential supervision, the frequent distinction between micro- and macro-prudential tasks should not lead to forget that the tasks are two sides of the same coin and that neither of the two can be effective without the other. Important synergies point to the strong desirability of maintaining close links and information exchange between supervisory authorities and central banks when the two functions are separated.

## 9. The Eurosystem...

While the previous sections discussed central banks and financial stability in general terms, referring to different countries and periods depending on the argument, this and the following section focus on the Eurosystem. It serves as a paradigmatic case to explore more concretely the policy tools and actions available to a non-supervisory central bank. To this end it refers to the list of tools of Table 1, which, albeit sufficiently complete to support the discussion of a general case, was drawn with the Eurosystem in mind.

Because of its unique legal and geographical features, the Eurosystem is a special central bank. Its single monetary jurisdiction, i.e. the single currency area, spans many supervisory jurisdictions, due to the fact that national supervisors have largely retained their responsibility. Meanwhile, the Eurosystem operates within a regulatory framework designed at the EU level. The resulting framework is composed of three distinct legal and geographical entities: the national authorities, which are responsible for the ongoing supervisory function; the ECB (geographically the euro area), which is responsible for monetary policy; and the EU (geographically the euro area plus three countries), which is responsible for regulation. This special structure raises a number of considerations.

Firstly, recalling the arguments of Section 2 – i.e. that what makes the banking and financial industry a “system” is the singleness of the currency and the central bank – the euro area is, and should be considered as, a single financial system, rather than the sum of many national systems. This holds irrespective of the empirical evidence suggesting differing degrees of integration in the markets for various financial activities.<sup>74</sup> Such system encompasses a single currency, a central bank system (the Eurosystem), and a payment system linking the participants in a network. In channelling funds across the financial sector as well as to the real economy, banks rely on a common payment system and a single source of central bank liquidity.<sup>75</sup> This per se implies that the stability of the financial system (using the definitions of stability and financial system adopted in Section 6), as well as the micro-

<sup>74</sup> See Padoa-Schioppa (2001) for more detailed discussion of this issue.

<sup>75</sup> This obviously does not preclude the existence of linkages and contagion between financial systems. A “global” financial system would then be considered a network of financial systems.

and macro-prudential functions safeguarding it, has in effect become a euro area-wide concern.

Secondly, as argued in Section 5, one important source of financial instability may arise from the exposure of banks to financial markets and the tendency of market liquidity to suddenly dry-up in times of crisis. Due to its size and diversified nature, the euro area has a higher capacity to absorb economic shocks than the financial systems in individual countries used to have before the euro.<sup>76</sup> For example, the integrated euro area-wide money market has given banks a source of funding which is wider and deeper (and thus more liquid) than the previous national markets.<sup>77</sup> However, this high integration has also increased the risk of cross-border contagion. In particular, major banks operating in the common wholesale system now form a fully integrated network. Furthermore, given the “tiered structure” of the interbank market, a significant problem at a large institution acting as “money centre bank”, can now be easily and immediately transmitted to other countries. The combined effect of a deeper market and an easier cross-border contagion has yet to be ascertained.

Thirdly, while conceptually and economically (not only geographically) distinct from the EU Single Market, the euro area has nevertheless inherited the regulatory and supervisory framework designed for the Single Market. It is based on the general principle that rule-making is European and rule-enforcement is national, or “European regulation with national supervision (narrowly defined, ref. footnote 15)”. Four aspects characterise this framework: (i) minimum harmonisation of the EU-wide regulation; (ii) mutual recognition of non-harmonised national rules; (iii) national competence for ongoing supervision; and (iv) close co-operation between national authorities.<sup>78</sup> Within this framework, some co-operation has developed in both bilateral and multilateral terms.

For the regulatory and supervisory framework to be effective, both the rules and their implementation should be uniform or at least consistent across the area. This is not the case today. As far as the rules are concerned, banks and other financial intermediaries operate under national rulebooks that, although meant to transpose the common EU legislation, de facto differ widely. As to implementation and enforcement, the supervisor should obviously “see” the whole system, which is impossible unless close co-operation and information sharing between central banks and supervisory authorities goes well beyond present practices.<sup>79</sup> To address financial stability concerns from an area-wide perspective, bilateral and especially multilateral co-operation needs to be significantly enhanced. Of course, it must also extend to crisis management, despite the absence of clear references to crisis management in Community legislation. If a crisis occurred at a subsidiary (rather than a

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<sup>76</sup> See Duisenberg (2001).

<sup>77</sup> See Santillán et al. (2000) for evidence of this rapid integration and ECB (2002) evaluation of banks’ liquidity risk management.

<sup>78</sup> The first two principles concerning regulation were adopted in Community legislation in the mid-1980s in order to accelerate the creation of the Single Market, including financial services. In 1999, as integration has remained incomplete, the European Commission identified a number of areas for action by 2005 (the Financial Services Action Plan). The principle of national supervision maintains that every financial institution operates throughout the Single Market under the authority of the home country who had issued its license. This allows the supervisory authority responsible for each institution to be identified unambiguously.

<sup>79</sup> The Economic and Financial Committee of the EU (2000) recommended fostering the exchange of information on the major financial institutions and market trends among supervisory authorities and central banks (“Brouwer I report”). Another report of the Committee (2001) called for strengthened information exchange and co-ordination of policies across national authorities in crisis situations. The report also notes that central banks need to be involved at an early stage in a crisis (“Brouwer II report”).

branch) of a banking group, the licensing authority of the host country would be expected to address the problem in close co-operation with the home authority of the “mother” bank.

Fourthly, an appropriate supervisory framework should not only be effective in addressing financial stability concerns, it should also imply minimum supervisory burden for the industry, thus supporting efficiency in the financial system. The EU and the euro area are now very far from this standard. Supervisory reporting requirements and rulebooks still differ markedly between countries. These differences represent major obstacles to cost-efficiency for financial groups active in different countries and/or sectors as pointed out in recent reports from the industry (e.g. the report of the “Forum Group”).

After the introduction of the single currency, European policy-makers have repeatedly addressed the appropriateness of the framework for the purposes of the euro area and the Single Market. The current approach is to fundamentally stick to the framework based on “European regulation with national supervision” while trying to improve its functioning. Improving the functioning should mean moving forcefully in the direction indicated in the previous two points. The December 2002 decisions of the EU ECOFIN Council represent a step towards greater consistency and lower burden for financial groups operating in several countries, as well as towards more flexible rule-making.<sup>80</sup>

The Eurosystem relates to this whole construction in three principal ways, spelled out by the Treaty. It has the task of contributing “to the smooth conduct of policies pursued by competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system” (Article 105(5)). It is entrusted with an advisory role in the rule-making process.<sup>81</sup> It has the obligation to “promote the smooth operation of payment systems” (Article 105(2)). The Eurosystem fulfils these tasks by way of decisions taken by the ECB and executed by the ECB and the national central banks.

## 10 . . .and the Tools for Action

Embedded in this unique institutional framework, the involvement of the Eurosystem, like that of any central bank without supervisory duties, is directly linked to the central bank instruments as identified in Table 1.

These tools include the central bank’s role in payment systems, public and private commenting in the area of financial stability, emergency liquidity support operations and, finally, crisis co-ordination. In this context, one should distinguish between tools aimed at crisis prevention, such as central bank involvement in payment systems, and tools aimed at crisis resolution, such as emergency liquidity support and crisis co-ordination. An appropriate communication serves both crisis prevention and crisis containment. As discussed earlier in Sections 6 and 7, monetary policy tools may also serve the purpose of preventing or tackling

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<sup>80</sup> The decisions of the ECOFIN Council are in line with the proposals of the Committee of Wise Men (2001) concerning the securities industry, but now applied to all financial sectors and financial conglomerates. The system relies on the establishment of new regulatory (“level 2”) and supervisory committees (“level 3”), for the functions of establishing common rules and ensuring their consistent implementation, respectively. To exploit the synergies between banking supervision and central banking, both national banking supervisory authorities and non-supervisory central banks, including the ECB, will attend the new “level 3” banking committee. For details, see the press release on the 2471<sup>st</sup> ECOFIN Council meeting of 3 December 2002.

<sup>81</sup> According to Article 105(4), the ECB must be consulted on any draft Community and national legislation on issues falling within its field of competence. According to Article 25(1) of its Statute, the ECB can provide, on its own initiative, advice on the scope and implementation of the Community legislation in these fields.

financial instability. However, the powerful arguments against a mechanical monetary policy reaction to emerging financial instability should not be forgotten.

Payment and settlement systems are the first tool I consider in this review. As indicated earlier in the essay, they are at the nexus of the financial system. Potential risks related to a disruption of the payment circuit – due to either a failing participant or to an operational breakdown – are extremely serious. In addition, credit positions across banks in netting systems can constitute a source of contagion risk.

Central banks have considerably developed mechanisms to limit the potential increase of these various risks. Specifically, in the field of large value payments they have promoted enhanced safety arrangements in net settlement systems,<sup>82</sup> supported the introduction of real-time gross settlement systems (RTGS),<sup>83</sup> and developed the payment and settlement system oversight function.<sup>84</sup> As operators of payment systems, they have unique expertise to identify potential risks and to handle stability problems. In particular, more efforts seem to be warranted to better use the data from payment systems for identifying liquidity risks.

The Treaty directly implies the ability of the Eurosystem to operate payment systems and set payment system standards. These functions are generally aimed at minimising the danger of system breakdowns and contagion, should an institution fail or a financial market distress occur.

In the euro area, a single RTGS system, TARGET, has been established, which links together the national RTGS systems of the EU countries.<sup>85</sup> The system was instrumental in the creation of the integrated euro area money market, which in turn was a pre-requisite for the single monetary policy and more generally for the creation of a single payment area. National netting systems, which operate in parallel with TARGET, all meet a same level of safety.<sup>86</sup> Oversight is a direct Eurosystem competence, with national central banks responsible for the systems located in their respective countries. The ECB has been allocated the responsibility for the oversight of certain international systems such as EURO1 and CLS.

Financial stability concerns increasingly also relate to securities clearing and settlement. The tendency towards consolidation in this area, including across borders, although improving efficiency, results in a concentration of transactions in a few systems. The ESCB and the Committee of European Securities Regulators are currently designing safety standards for security settlement systems, including clearing systems.<sup>87</sup> Further risks may arise from the fact that most cross-border transactions are still conducted via custodian banks,

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<sup>82</sup> In 1990 the G10 “*Report- on Inter-bank Netting Schemes*” (Lamfalussy Report) set minimum safety standards for net settlement systems. Following the report most systems in the world have amended their operational rules and procedures. The follow-up report in 2001, “*Core Principles for Systemically Important Payment Systems*”, complemented the standards and extended their applicability globally.

<sup>83</sup> RTGSs became technically feasible and cost-efficient in the mid-1980s, when the development of ICT removed virtually all obstacles to increasing the velocity of money. RTGS ensures the immediate finality of each payment, thereby eliminating intraday counterparty risk positions between banks and thus substantially reducing contagion risks. The risk of a payment system gridlock and liquidity shortfall, however, remains in place.

<sup>84</sup> The oversight function aims to ensure the soundness of the systems from the legal, credit, liquidity and operational risk control and governance viewpoints. It ranges from setting standards to monitoring systems and assessing their compliance with the standards.

<sup>85</sup> TARGET is an EU-wide system for euro payments. It is a real-time gross settlement (RTGS) system for the euro consisting of fifteen national RTGS systems and the ECB Payment Mechanism.

<sup>86</sup> Such level have to be at least equivalent to that required in the “Lamfalussy Report”.

<sup>87</sup> This work also relies on the global standard setting of the CPSS and IOSCO.

rather than through links between national security settlement systems. The growing volume of cross-border transactions has increased the importance of these banks. It is a concern that such entities are currently insufficiently regulated or supervised with respect to their settlement capacity.

Public and private comments, the second tool I consider, can be a powerful additional way to influence market behaviour in a manner, which can be conducive to financial stability. Technically, comments are usually disseminated through financial stability reviews, official statistics, and public statements.<sup>88</sup> Bilateral and private communication with market players, banks and policy-makers is also quite important. For instance, bilateral consultations with banks do always carry an influence, and even include an element of “moral suasion” when deemed necessary.

There is a view that because central banks are unlikely to possess an information advantage, efficient markets are not influenced by their communication and are perfectly able to deal with irrational expectations on their own. In particular, if central banks were able to assess the development of a destabilising “herd” or a “bubble” correctly, they would do so on the basis of information available to other agents as well, so that such a development would be unlikely in the first place.<sup>89</sup> I do not share this view, and am pleased that some recent academic literature seems to support me.<sup>90</sup> For instance, private market analysts may lack incentives to move against the “herd”, since market participants tend to be evaluated against a benchmark of their peers. It is clear that in such a system, risk adverse agents prefer the safety of being wrong along with everyone else to the slim chance of being right alone.

In reality, the judgement of a central bank has an impact even if its communication does not contain new information. The reason lies, first, in the authority deriving from its high expertise. It also depends on the fact that a central bank does not aim at maximising profits and therefore faces different incentives from market participants, giving its views a different and greater weight in the marketplace than private sector commentators. It is in this sense that public “comments” by a central bank may be useful in preventing and containing financial instability. Sometimes public availability of credible information is enough to shift perceptions of investors and thus prevent detrimental herds or bubbles from developing.<sup>91</sup> Furthermore, given that they speak much less frequently than other market participants, the mere fact that central banks (or other policy-makers) reveal their views may have a stabilising impact on financial markets.<sup>92</sup>

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<sup>88</sup> In the EU, the Austrian, Belgian, Danish, Finnish, French, Spanish, Swedish and the UK central banks issue financial stability reviews at the moment.

<sup>89</sup> See, for example, Santos and Woodford (1997) for a recent formulation. However, see Tirole (1985) and Allen and Gale (2000b) for the possibility of bubbles even if all players are rational, but there is nevertheless no room for beneficial announcements by authorities.

<sup>90</sup> Alternatively, a public announcement can help bring prices back in line with fundamentals. See Abreu and Brunnermeier (2001).

<sup>91</sup> Technically, “herding” is observed if there is a convergence of behaviour, i.e. if agents ignore private information and follow the actions of others. A “bubble” occurs if rational agents know that the price of an asset is too high relative to fundamentals, but they believe that they can unwind their positions at a higher price before the bubble bursts. See Brunnermeier (2001), Bikhchandani et al. (1992), Banerjee (1992), and Lee (1998).

<sup>92</sup> In this spirit Bhattacharya and Weller (1997) argue that a central bank intervention can stabilise foreign exchange markets. In addition, Heinemann and Illing (2002) show that greater transparency on the part of the central bank can reduce the probability of speculative attacks.

Naturally, the tool of public commenting needs to be used prudently and sparingly to maintain its effectiveness. Just as in monetary policy-making, an essential ingredient of communication in financial stability to be effective is credibility and reputation. Of course, comments could be extremely counterproductive if information is released at the wrong time or turns out to be incorrect.<sup>93</sup> Finding the right words at the right time, with respect to monetary policy as well as financial stability, remains at the core of the art of central banking.

In addition to their judgement on situations and events, central banks can bring to the public helpful information on risk exposures (e.g. lending levels to particular sectors and countries) and other vulnerabilities. When addressing system-wide vulnerabilities, co-operation between central banks and supervisory authorities is valuable to combine the view of macro-economic and financial risks with information on the exposures of individual financial institutions.<sup>94</sup> Effective communication should include exchange of information between central banks and supervisory authorities (e.g. as regards emergency liquidity assistance to individual institutions), macro-prudential analysis, and surveillance of risks to financial system stability.

The ECB, in co-operation with the national authorities on the Banking Supervision Committee, has established a framework for macro-prudential analyses focusing on the stability of the EU banking sector. As noted in Section 8, such analyses are also needed for the effective use of policy tools in the financial stability area by supervisory authorities. Regular internal macro-prudential reports are produced twice a year,<sup>95</sup> as well as ad hoc reports on relevant issues, five of which have been published (e.g. asset prices and banking stability). As for financial markets, relevant analyses are carried out in co-operation with national central banks, and also benefit from contacts with market participants. For instance, regular monitoring of money markets, as well as of other important financial markets and financial infrastructures is undertaken within the ESCB.

Liquidity injections into the market as a whole (market operations) or into individual institutions (lending of last resort or emergency liquidity assistance, ELA) are the third and most traditional tool available to a central bank for dealing with financial instability.

It is important to recognise that not all liquidity injections aimed at preventing the spreading of a liquidity problem relate to a crisis. As discussed in Section 6, central banks routinely offer the lubricant of adequate liquidity against specified collateral requirements in order to support the orderly functioning of markets. For the ECB, this crucial function is not only embedded in the ordinary assessment of the amount to be allotted in the weekly tender. It is also specifically assured by the two standing facilities that regularly and automatically prevent the emergence of liquidity tensions that would otherwise call for discretionary counteractions.<sup>96</sup>

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<sup>93</sup> It might also happen that agents overreact to imprecise information from central banks, thereby increasing volatility and decreasing welfare. See, for example, Morris and Shin (2002).

<sup>94</sup> This was the objective in some of the publications of the Banking Supervision Committee. See in particular ECB (2000b).

<sup>95</sup> The techniques for assessing banking sector stability involve a systematic and regular monitoring of developments on the basis of the interpretation of quantitative macro-prudential indicators (MPIs) together with the qualitative assessment carried out by the authorities with detailed information on the risks of individual banks. In addition, forward-looking information from public (e.g. financial market) sources on bank and non-financial sector health are used to complement the picture.

<sup>96</sup> A significant demonstration of the usefulness of these facilities to prevent monetary and financial disruptions was given on the occasion of Y2K, when, contrary to other central banks in the world, the ECB did not need to put up special measures to handle the much feared shortages of central bank money.

Yet, the eye-catching events are those associated to the rare occasions, in which liquidity injections occur once a crisis has already erupted. Such rare events indeed epitomise the image of a central bank's role in financial stability, much more than the ordinary actions aimed at preventing crises, like ordinary liquidity provisions, or setting payment systems standards or, even more, communication. The various recent episodes, reviewed in Section 5, have shown how much timely provisions of liquidity can stabilise markets and mitigate the repercussions of shocks.

Also in the literature, attention has been much focused on liquidity assistance and public bailouts of banks.<sup>97</sup> Early criticism of the ECB, for example, doubted its capability to act (e.g. CEPR 1998) should a liquidity crisis occur. I regard these doubts as not warranted.<sup>98</sup> The arrangements concerning ELA have been revised in conjunction with the launch of the euro in order to adapt to the new institutional and operational framework created by the euro. Generalised liquidity operations via market operations are in the Eurosystem's area of competence, while ELA to individual institutions remains, according to an agreement reached in 1999, a national competence and outside the direct scope of Eurosystem policies. Accordingly, the associated costs and risks are to be incurred by the national central banks concerned.<sup>99</sup> However, in the Eurosystem, the normal communication channels have to be activated to address the potential cross-border effects in liquidity crises, and the ECB would become involved, if required by the scope of the crisis.

The evidence reviewed in Sections 5 suggests that the transformation of the financial system has increased the potential for liquidity shortages in a crisis. While, in the presence of deposit insurance, bank runs by retail depositors have become less and less likely, losses of liquidity from wholesale markets have become more important. This suggests that market operations especially aimed at preserving adequate liquidity conditions continue to be central among central bank tools.

The ability shown in responding effectively to the implications of 11 September 2001 has demonstrated the Eurosystem's capacity to deal with liquidity problems. In the days following the attack, many euro area banks hoarded their liquidity and were unwilling to lend to the market, as reflected in high overnight rates and bid-ask spreads. The Eurosystem reacted by injecting additional funds through fine-tuning operations. Although the Federal Reserve System provided ample liquidity through its discount window and market operations, euro area banks without a US banking licence were not able to get US dollars through direct access to the discount window. To channel the necessary US dollar funds to euro area banks, the ECB and the Federal Reserve Bank of New York concluded a USD/EUR swap agreement, followed by corresponding agreements between the ECB and the NCBs and the NCBs and market counterparties.

It should be noted here that the injection of liquidity required for resolving a crisis does not necessarily take the form of a provision of central bank money. Co-ordinated private sector solutions without the injection of public funds are also frequent and, as such, they are formally unaffected by the advent of the euro. However, the potential area-wide nature of the

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<sup>97</sup> Prati and Schinasi (1999) represent an early and comprehensive analysis of the challenges to financial stability in EMU, especially as regards resolving liquidity and solvency crises in the banking sector.

<sup>98</sup> See also Padoa-Schioppa (1999).

<sup>99</sup> Nevertheless, the agreement includes measures to ensure management of the monetary consequences of the ELA operations to maintain an appropriate monetary policy stance and to ensure adequate information exchange about the potential cross-border effects. For these reasons, for large operations there has to be advance information to and consent from the Governing Council of the ECB. In the case of smaller operations, information exchange after the event has been deemed sufficient. See, for example, the ECB's Annual Report for 1999.

issues can call for cross-border co-operation and for an involvement of the Eurosystem to facilitate such solutions.

It is outside the scope of this essay to deal with the issues of solvency support and the interplay between monetary and fiscal authorities and deposit insurance agencies. Some have expressed a concern that there is no EU or euro area wide system to authorise or fund solvency support to banks that operate in several countries and whose failure would impinge on many countries (since we do not have a European supervisory and fiscal authority). Hence, it has been argued, support decisions made by national Ministries might be sub-optimal in specific cases, as they might ignore the effects in other countries. Also, as has been further observed, home countries might lack the resources needed to rescue a major international bank.<sup>100</sup> It could of course be noted that, in a way, the implied reduction in the supply of solvency support could have a positive aspect, since it could reduce the expectation of public bailouts and thus reduce moral hazard. This, however, is a partial answer. Undoubtedly, to orderly wind-down and restructure a large failed institution with substantial cross-border operations would constitute a major challenge for co-operation among national authorities. Yet, the current institutional arrangements for handling a solvency crisis are still adequate and can function provided that there is increasing co-operation among all relevant authorities from different countries.<sup>101</sup>

Crisis co-ordination is the fourth and final tool available for dealing with financial instability. For the Eurosystem, as for any central bank, the effectiveness of such a tool can, of course, only be tested in a crisis. Just as a peaceful country should have an effective army even in peacetime because, once an attack comes, it is too late, so the central bank should prepare itself for crises in periods of financial stability. As part of these preparations, the adequate capability of financial institutions to produce relevant information for authorities in a swift manner (contingency plans) has been recently addressed in a number of European and international forums.

In a crisis, there is no alternative to close co-operation and exchange of information between central banks and supervisory authorities. The Banking Supervision Committee has done extensive work to prepare central banks and supervisory agencies to such a contingency. Obviously, the practical issues in crisis co-ordination, which are always difficult, become especially thorny in the international context. For example, differences in opinion may arise when assessing the systemic relevance of a problem or when selecting the policy tools to activate. National authorities have a natural inclination to emphasise domestic considerations and may undervalue the legitimate rights of foreign stakeholders.

In concluding this section, it should be stressed that the Eurosystem (like any central bank, irrespective of whether it is the formal supervisor or not) has a strong interest in *individual institutions*. Indeed, as outlined in Section 2, the role of a central bank as the bankers' bank implies a need to be concerned with the soundness of its individual counterparties. This adds to the maintenance of what I have earlier referred to as *general* conditions of financial stability, or also orderly market conditions.

For the Eurosystem, such interest is reflected in the statutes, which impose upon it the general obligation to operate under the principles of an "open market economy with free competition" (Treaty Article 105(1)). Moreover, the System has a specific obligation to

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<sup>100</sup> See Goodhart (2002), and Freixas (2002).

<sup>101</sup> See the Economic and Financial Committee of the EU (2001).

manage its own exposures prudently. For instance, all credit operations of the Eurosystem must be collateralised.<sup>102</sup> When, in the second half of 1998, the decisions on how to select counterparties were taken, it was decided to delegate the selection to some extent to the supervisory agencies. Indeed, almost without exception, access to Eurosystem monetary operations and the TARGET system is provided to all credit institutions (i.e. banks as defined by the EU) which meet the requirement of being licensed and supervised by competent national authorities.<sup>103</sup> Of course, such an arrangement can deliver a satisfactory outcome, provided that the regulatory and supervisory arrangements are deemed adequate. Nothing, however, could have prevented the Eurosystem from deciding to check counterparties itself. And, should the eligible institutions encounter severe problems, or should the delegation for any reason be felt as an insufficient guarantee, the Eurosystem would have not only a legitimate right, but also a duty to assure itself of the soundness of its counterparties.

In this context, it should be noted that the Eurosystem already sets to some extent its own standards. This is visible, for example, in the field of settlement systems. In this field the Eurosystem has developed standards which must be met by all EU securities settlement systems as a condition to be eligible for Eurosystem credit operations.<sup>104</sup> In particular, the Eurosystem must be assured that central bank refinancing is granted through procedures, which will prevent central banks from assuming inappropriate risks in conducting monetary policy and intraday credit operations and which will ensure the same level of safety, regardless of the settlement method. As a consequence, these standards have effectively become supervisory standards and a guide for the industry's development; as such they apply not only to operations related to central bank credit, but also to all kinds of operations.

## 11. Summary and Conclusion

The key points emerging from this essay can be recapitulated as follows. Central banks are bound, by construction, to be involved in financial stability: they are themselves banks with business operations, they must control the soundness of their counterparties, and they are entrusted with the exclusive task of creating ultimate liquidity. No other public or private institution has been invented which is equally capable of avoiding and mitigating the "indiscriminate public terror" (Bagehot 1873) of a financial crisis. Thus, central banks do play and should play an important role in maintaining financial stability, regardless of the institutional structure for supervision, which happens to be adopted in their jurisdiction.

The profound transformation that both financial systems and central banks have undergone over the last quarter century provide impetus for carefully re-examining our approach to financial stability and the role central banks play. The transformation has influenced the kind of financial crises we might face. In particular, since the importance of liquidity and contagion risks is increasing, we should expect an increase in the role of central banks in financial stability. Attention should be paid to the risks stemming from non-bank financial activities and financial market price developments. Given the improvements in risk management techniques and procedures, as well as in the conduct of prudential supervision

<sup>102</sup> See Article 18(1) of the Statute. Collateralisation is, of course, not a perfect substitute for checking the soundness of the counterparties, since the market value of collateral can suffer in times of crisis.

<sup>103</sup> See "The Single Monetary Policy in the Euro Area: General Documentation on Eurosystem Monetary Policy Instruments and Procedures", ECB, April 2002 (update of the November 2000 edition). See also "TARGET – Update 2001", ECB, November 2001.

<sup>104</sup> See "Assessment of EU Securities Settlement Systems against the Standards for Their use in ESCB Credit Operations", ECB, September 1998.

and payment systems oversight, it is tempting to argue that the probability of a crisis has diminished. This conclusion, however, may be premature, as recent experience and the daily reading of the financial press suggests. At the same time, should a crisis occur, it would probably result in a situation where central bank expertise is in high demand.

This essay addresses the issue of defining a central banks' function in the field of financial stability and its place among public policies. This function occupies a "land in between" monetary policy and supervision, somewhat independent of, but also closely related to, both adjacent functions. Smooth interplay on both borders is, therefore, crucial. I do not see a fundamental or likely conflict between preserving price stability and being concerned with financial stability. In special circumstances, however, a central bank could enter a "price stability versus financial stability" trade-off in the short-run. Even though synergies between price stability and financial stability prevail in the longer term, a successful monetary policy (successful in keeping prices stable) will not always be sufficient to prevent financial instability. Hence, central banks cannot be indifferent to financial stability; benign neglect is not an option. The Eurosystem cannot be an exception to this.

While central bank involvement in financial stability is distinct from, and complementary to, supervisory functions, the role of the central bank absolutely needs the underpinning of an appropriate overall supervisory regime, whether or not it is entrusted to the central bank. A successful conduct of supervisory and central bank functions requires close co-operation and information exchange, and central banks should continue to provide advice on supervisory rules and policies.

There are many unresolved issues on the way to designing successful policies to maintain financial stability. This essay is not intended to be prescriptive or to make strong policy recommendations on each and every issue. Rather, its intention is to provide a road map for discussing the issues.

Central bank activities addressing financial stability are increasingly preventive. Overseeing payment systems, disseminating information to markets, and setting standards should further increase in importance and lessen the moral hazard that arises from being the lender-of-last-resort to illiquid markets and institutions. Central banks are involved in financial stability because they implement monetary policy by managing the liquidity situation in the interbank money market. They also usually run the main wholesale payment systems, either settling in central bank money or developing safety standards for systems operating in commercial bank money. As experience has shown (e.g. by reacting to September 11), central banks swiftly respond to situations of financial distress in a way that mitigates the impact of the event and protects the financial system from systemic risk.

Financial cycles could become stronger in the future because of the increased importance of financial markets for financial and non-financial sectors of the economy. Hence, also the risk of disruptive economic booms and busts is likely to remain relevant or even to grow. This could endanger financial stability, even if a sound supervisory framework reduces the risk. The way forward is to enhance co-operation among central banks and supervisory authorities in addressing financial instabilities, and to combine more system-wide and counter-cyclical supervisory policies with the readiness of central banks to address financial stability concerns.

Finally, and turning to the Eurosystem, all the above considerations apply to it as much as to any central bank. In particular, the Eurosystem has only very limited supervisory duties,

but has all the typical tools for financial stability, which non-supervisory central banks have. Unlike other central banks, financial stability is explicitly mentioned in the Treaty as one of its obligations. Also, the Eurosystem has an obligation to deal only with sound counterparties, and has therefore a precise interest in strong and far-reaching European supervisory co-operation, as well as in global co-operation under the auspices of the Basel Committee on Banking Supervision. Unnecessary firewalls should not be created between central banks and supervisory bodies.

As a euro area financial system has been created by the very fact of adopting a single currency, and since the internal integration of this system is proceeding apace, financial stability concerns have effectively become a euro area-wide issue. This strengthens the case for a further deepening of the area-wide perspective. The euro area has inherited the supervisory framework established for the needs of the EU Single Market. But the unique challenge faced by the ECB lies in the threefold separation between the regulatory body (the EU), the single currency area (the euro area) and supervisory jurisdictions (each euro area country). This threefold separation requires special forms of co-operation between public bodies.

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## Panel Discussion

### C.A.E. Goodhart

Tommaso Padoa-Schioppa is an outstanding expert on the role of central banks in the exercise of achieving financial stability, so much so that I am trying to act as a middleman to get him to publish a set of papers in this field. He has now provided us with another magisterial exposition, which I hope that he will allow me to include in his forthcoming book.

So he will forgive me, I hope, if I try to probe for weaknesses in his arguments. The weakness that I worry about most is that there is insufficient discussion of the relationship between the central bank and the relevant *fiscal* authority.

Now it is true that a central bank can provide liquidity on its own, and in the rather rare cases where potential insolvency is *not* an issue, it can resolve the situation by itself; September 11, before then Bank of New York, and arguably September/October 1998 were all such cases. But normally markets can deal with idiosyncratic cases of pure illiquidity on their own. Usually when illiquid institutions cannot resolve their liquidity problems through the money markets, it is because there is a whiff, or rumour of possible insolvency. It is generally very hard at the start of a crisis to discriminate clearly between illiquidity and insolvency.

A central bank can create liquidity, but it cannot provide for new injections of equity capital. Only the fiscal authority can do that. As Tommaso Padoa-Schioppa, in about his only reference to governments stated, “The pattern of crisis resolution in different countries was also rather similar, not least in that the role of central banks was relatively limited in comparison with the role of the government and its agencies. While in most cases some initial liquidity support or bridging loans were extended, it was often obvious from the outset that the problem was insolvency rather than illiquidity.”

The problem that I foresee is that most financial crises, in future as in the past, will involve some concern about solvency and the need to repair capital adequacy. This is obviously *not* to say that *all* potentially insolvent banks should be rescued at the taxpayers’ expense. But there *will* be cases where rescue may seem the optimal approach, and this has to be decided *jointly* between the central bank and relevant fiscal authority. Moreover, by the time commercial banks come to the central bank they may have already used up their better collateral in getting market loans, so any Lender of Last Resort (LOLR) actions will tend to involve some risk to public sector, i.e. taxpayers’ funds.

This need for the central bank to interact with its fiscal counterpart in the assessment, prevention and resolution of financial crises is much harder within the euro-system than elsewhere. In other countries the national central bank can enter discussions with the national Treasury, which has the ability to use taxpayers’ funds, if need be, to resolve national financial crises. The on-going difficulties in Japan, however, reveal how difficult this may be even within the context of a single nation state. Within the euro-area the ECB operates at the level of the eurosystem, but it has no fiscal counterpart. There is no competence for the EC budget to extend funding for the resolution of financial crises. Hence the relevant fiscal authorities have, perforce, to be at the national level.

This causes a disjunction. For the time being it, perhaps, does not matter greatly since so much of retail financial intermediation remains national, rather than trans-European, in control. Thus any financial crisis, for the time-being, is likely to remain primarily concentrated in one country rather than spread over the whole euro-zone. Indeed in a crisis today the main spill-over effect may well be felt in the wholesale financial centre in London, rather than in neighbouring countries within the euro-zone. If so, the question of who should

bear the burden, and take the decisions, can remain reasonably enough at the level of the national authorities. But this condition, of national separation of retail financial intermediation, is beginning to go, has already largely disappeared in Scandinavia, where the commercial bank Nordea spans all the countries, (and also perhaps in Benelux), and *should* be replaced by more pan-European institutions. If so, the question of burden sharing between national authorities in the process of financial resolution may become much more difficult.

Padoa-Schioppa argues, in his preceding paper, that the stability of the financial system has in effect become a euro-wide concern. But so long as the relevant fiscal authorities remain at the national rather than at the federal euro-wide level, then euro-wide issues will continue to be decided by Lamfalussy-type committees of *national* authorities, as we are currently seeing, in which the euro-wide agencies, both the ECB and EC will, most likely, play a supporting rather than a central role.

Now I rather doubt the capacity of committees of national authorities to be very good at problems of burden sharing, as this will increasingly arise in future as the European financial systems become more integrated across borders. Such problems of burden sharing may be both particularly acute and particularly difficult to handle in fast-breaking financial crises. But getting the show back onto a euro-wide basis must involve, crucially involves, the need to face and to resolve such issues of fiscal structure and governance. Unless the euro-system is prepared to face this fiscal issue squarely, I see no alternative to the present trend towards euro financial stability control via committees consisting of national authorities.

## **Jaime Caruana**

### **Introduction**

It is a pleasure for me to be here today on such a distinguished panel in this session devoted to financial stability, an important topic very close to the hearts of central banks.

The contribution of central banks to financial stability is included, in one way or another, and usually very explicitly, in most of their statutes. Tommaso in his paper rightly says that it is part of their genetic code. Financial stability is vital for the conduct of monetary policy and, therefore, for central banks.

The fact that most institutional arrangements relating to financial stability and prudential supervision include central banks as a key component is not an accident. Rather, it is the result of many years of experience and the recognition of the specific features of the banking system and the interplay between the financial system, monetary policy and the real economy.

I will try to contribute to this debate from the standpoint of a central bank that is a member of the Eurosystem and, at the same time, has banking supervision responsibilities. These two features are in fact shared by most of the central banks of the Eurosystem and they add a number of elements to the discussion.

I will not discuss the different national models for supervision, namely, specialised supervision versus integrated supervision or the so-called “twin peaks” model. I tend to think that neither theoretical discussion nor empirical facts are conclusive and that the evolution of supervisory arrangements at the national level is more historically driven or, if you prefer, event-driven.

Whatever the supervisory model in a particular country, maintaining and strengthening the stability of financial systems is also a goal of governments, supervisors and international organisations worldwide.

Co-ordination of different parties with different perspectives raises organisational issues. I would like to share some reflections from the perspective of a central bank with supervisory responsibilities.

The first of the two features mentioned, namely belonging to the Eurosystem, has an important bearing on financial stability.

### **Being Part of the European Union**

Being part of the European Union means that we already benefit from two essential components: a partially harmonised regulatory framework, and a decentralised supervisory structure, consistent with the reality of European financial markets today.

Retaining supervisory responsibilities at the national level not only reflects the present limits of our political integration in Europe. On a more practical level, it also allows the supervisor to be near the “supervisees” and, thus, more closely in touch with, and able to respond to, the developments affecting them.

It also recognises the important differences that still remain between European countries. These differences relate to financial market structures and tax, commercial, accounting and other regulations.

Having said that, I recognise that we face challenges that require us to adapt the way we regulate and supervise. This need for adaptation is not new. Supervisors have always had to adapt to rapidly changing circumstances and market and economic developments, including – not least – the challenge of adapting and responding, twenty or thirty years ago, to the liberalisation of our financial systems, and also the updating of banking regulation and of crisis management procedures, and the identification and treatment of new risks.

The new challenges are once again very important. I would just like to mention some examples, all of which I am sure will be well known to you: the internationalisation and concentration of banking institutions, the birth of large financial conglomerates, the blurring of boundaries between financial intermediaries, continuing technological developments, market integration and innovation, the new risk profiles of banks and the shift towards more qualitative and risk-sensitive prudential regulation, the key importance of the transparency and soundness of accounting practices, the increasing importance of code of conduct rules, and so on. And, of course, we must not underestimate the impact within the EU of the introduction of the euro.

The European supervisory model is therefore based on a decentralised system. Although there is harmonised EU legislation in those areas considered to be essential to the internal market in financial services, the implementation of this legislation and the regulation and supervision of institutions remains at the national level. However, this is reinforced by a number of co-ordination and information-exchange mechanisms.

### **Being Part of the Eurosystem also has Important Implications**

First, we have to acknowledge that monetary union and the introduction of the euro has changed the risk profile of the area. We now have money markets and interbank markets that are much more integrated and we have a common infrastructure for large payments. On one hand, we are part of a more stable area, and on the other, our financial systems are much more interconnected and therefore exposed to common shocks. As a result, cross-border co-operation needs to be enhanced to prevent systemic risks.

Second, since the primary objective of the single monetary policy is to maintain price stability, a question often posed is the extent to which there may be a conflict between price stability and financial stability. In my view, there are several reasons suggesting that, the potential for such conflict is often overstated.

At a general level, experience shows that price and financial stability tend to complement each other. For one thing, threats to financial stability are likely to be smaller in those cases where price stability is preserved. For another, it is very unlikely that price stability can be maintained in an environment of financial fragility. And finally, a stable financial system helps better disseminate the effects of monetary policy throughout the economy, thus facilitating its task in the pursuit of price stability.

At the level of the Eurosystem, the combination of centralised decision-making in monetary policy plus decentralised supervisory functions makes the probability and relevance of conflicts between price and financial stability less plausible and significant.

Lastly, our domestic experience as supervisors also reveals that the risks of conflict have been exaggerated and that the advantages of combining the knowledge and expertise derived from the management of liquidity in monetary policy operations, payments systems, supervisory activities and research analyses are huge and tangible.

Central banks involved in supervision are in an optimal position to assess the problems affecting individual institutions or the banking system as a whole, as well as the potential impact of macroeconomic events or shocks. The role of central banks in liquidity management means that their participation in crisis management is essential.

Micro-prudential and macro-prudential aspects of financial stability are clearly becoming increasingly interconnected. Micro-prudential regulation can have significant macroeconomic consequences. Therefore, when designing and modifying prudential rules, policymakers should take into account their potential macroeconomic effects.

More importance is being given, and indeed should be given, to how financial systems perform in poor economic conditions and over the course of the cycle, and to what extent they tend to amplify or smooth cyclical swings in the real economy.

One key question we regulators should ask ourselves is, therefore, whether existing regulations provide the right incentives for financial markets and intermediaries to assess risks properly and to adapt smoothly to shocks. In addition, as regulators, we should check the consistency of aggregate behaviour. These questions are directed at the very essence of financial regulation, whose basic aim is to ensure the stability of the financial system without being over intrusive or undermining its efficiency.

### **Co-operation and Convergence**

Enhancing financial stability requires giving special attention to many different areas: payment infrastructures, regulation, accounting, corporate governance, disclosure, market oversight and supervisory practices, and all of these need to be market-friendly, compatible with appropriate incentives and also supportive of good risk management.

However, today, from the perspective of this seminar, I would like to concentrate on two crucial ideas that I have already mentioned: co-operation and convergence.

## Co-operation

What does co-operation mean? It can mean a number of things. For example, sharing information and informing one another about our approaches and actions in relation to particular issues, policies or practices. It can also mean co-ordinating our actions in order to be more efficient and effective.

We already have a number of co-operation mechanisms at the European level, each of which has an extremely important role to play. These include most notably those provided for in the consolidated supervision and conglomerate directives, the multilateral ECB Banking Supervision Committee, which focuses on financial stability issues in the EU context, and the EU Committees working on regulation, such as the Banking Advisory Committee, and the Groupe de Contact. We might also mention the bilateral memoranda of understanding between European supervisors and the related bilateral meetings.

Nevertheless, I am aware that we need to increase the level of co-operation and, therefore, that the present co-operation arrangements need to be enhanced. The present initiative to translate and adapt the so-called Lamfalussy approach to banking is a necessary development, not only because of the challenges of new banking regulation, especially the prudential challenges, but also because it moves in the direction of increasing convergence and co-operation. Nevertheless, I would argue that we may need more time and extensive interaction with industry to lay the foundations for this initiative.

This is especially true if we believe – as I do – that there are important differences between banks and investment firms, and that the reality is that co-operation in the banking committees has a longer tradition and has functioned adequately. This means that transferring the Lamfalussy proposals from securities to banking cannot be an automatic process. In fact, the latest proposals accept some differences in the committee structures between the two sectors.

It is important to underline the differences between prudential supervision aimed at systemic stability and depositor protection, and the conduct of a business/market-supervision function more focused on investor protection. There are a number of conceptual, legal and practical differences between banks and securities firms: the taking of deposits, the role of banks in payments systems, the types of risks and the nature of crises.

## Convergence

Convergence to some set of best practices can be seen as a way of improving supervision and at the same time of resolving the dilemma of several national supervisors, with different approaches to supervision, supervising pan-European banks. Moreover, having similar or “convergent” supervisory practices across countries would – sooner rather than later – entail similar cross-border supervisory practices and thus lower costs to international banks in terms of compliance with supervisory requirements.

I think it is important to recognise the difference between harmonisation of regulation at the highest level (which is achieved in Europe via EU legislation) and convergence of supervisory practices. Convergence involves identifying the best banking supervision practices and making them the most common ones. In this sense, it may simply mean that some countries voluntarily agree to seek to do similar things in a similar way under a moral rather than a legal obligation.

And it is also important to note that convergence is not always an appropriate response. In some cases, supervisory practices may differ in Europe for good reasons. These

divergences may result from structural differences between financial systems, differences in organisational responsibilities and the degree of sectoral integration, to name but a few possible reasons.

In any case, we need to be sure that these processes of convergence and co-operation, as well as any future changes to the existing framework, build on the good work and good relations developed over many years between central bankers and supervisors.

### **Roger W. Ferguson**

I would like to join others in commending the ECB for organizing this very timely panel on financial stability and central banking. Against the backdrop of the wide swings in equity prices in recent years, the financial market repercussions accompanying corporate accounting scandals in the United States, and the current difficulties in key emerging market economies, it seems appropriate to reconsider the role of central banks in fostering financial stability. In my contribution to this panel, I want to do this by addressing four areas. First, I want to define what financial stability means. Second, I want to address what the sources of central banks' interest in financial stability are. Third, I should like to discuss how the Federal Reserve System is implementing this interest in financial stability. And fourth, I wish to analyze the right degree of activism in pursuing financial stability.

### **The Meaning of Financial Stability and Public Policy**

It seems useful at the outset to define financial stability and to do so by defining its opposite, financial instability. In my view, the most useful concept of financial instability for central banks and other authorities involves some notion of market failure or externalities that can potentially impinge on real economic activity. Thus, for the present purpose, I'll define financial instability as a situation characterized by these three basic criteria: (1) market functioning and credit availability, domestically and perhaps internationally, have been significantly distorted; and/or (2) some important set of financial asset prices seems to have diverged sharply from fundamentals; with the result that (3) aggregate spending deviates (or is likely to deviate) significantly, either above or below, from the economy's ability to produce.

With this definition of financial instability, a clear public policy interest arises for central banks and other authorities to act in two distinct roles in pursuing financial stability – prevention of instability and management of the consequences once markets become unstable. In the area of prevention, perhaps the single most important thing a central bank can do is to foster a macroeconomic environment of low and stable inflation and sustainable economic growth. Absent such desirable macro fundamentals, the risks of financial instability are almost certainly higher and the effects of financial instability when it arises all the more pernicious. Beyond conducting sound macro policy, central banks have traditionally been involved in a number of activities, all of which are also addressed in Tommaso Padoa-Schioppa's paper for this panel, such as formulating appropriate financial regulations, implementing effective bank supervision, and operating or overseeing efficient payment systems, all of which help to attenuate the risks of financial instability.

Under the heading of management, central banks can and have in the past altered monetary policy to forestall or mitigate the consequences of financial instability for the economy. When

such instability slides into crisis, they can employ their basic tools to help alleviate liquidity pressures and to bolster public confidence. Liquidity pressures can be addressed, for example, through generous provision of reserves via open market operations and direct lending to depository institutions via a lender-of-last-resort or discount window function. Moreover, central banks can use their role as operators and overseers of payment systems to ensure the continued functioning of such systems in order to help an economy that has entered a crisis to return to financial stability. Finally, central banks can “work with” banks in a way that keeps banks safe and sound, as well as encourage them to work with their customers in the same direction.

### **Central Banks’ Interest in Financial Stability**

Going back to the basics of the theory of central banking, Bagehot and Thornton described central banks as a potential source of emergency liquidity support for financial markets through open market operations or discount window lending. This description gives the impression that one of the purposes of central banks is to respond as a lender of last resort to financial crises should they emerge. Against this background, I have reviewed the charters of several major central banks to see in which way and to what extent the objective of financial stability has been incorporated.

In the case of the Federal Reserve, financial stability concerns were at the core of the Federal Reserve Act. Indeed, the Federal Reserve owes its existence to the financial instability of the U.S. economy in the nineteenth and early twentieth centuries. Whereas the preamble of the Federal Reserve Act implicitly embodied financial stability as an objective of the Federal Reserve, more specific references to financial stability were implemented twenty years later, with the revisions of the Federal Reserve Act that were implemented in the depth of the financial and economic crisis of the Great Depression. In contrast, more than forty years more were to pass before the Federal Reserve Act would contain an explicit statement of its macro policy objectives.

Other countries have also recognized the interdependence of macroeconomic performance and financial stability and, as a result, many central bank charters reflect a concern for both macro objectives – such as price stability and satisfactory economic performance – and financial stability. Among the small sample of central banks listed in Table 1, all have at least some implicit references to financial stability and many have quite explicit references to financial stability as a factor that central banks need to consider. (The latter are marked in italics in the table.) In many cases, the explicit references to financial stability fall in the realm of banking and the efficient operation of the payment system. However, some have references that seem to embody a broader notion of financial stability.

### **Implementing the Interest in Financial Stability**

But just how should a central bank take financial stability considerations into account in reaching policy decisions? In conducting monetary policy, the Federal Reserve normally prefers to focus on its broad macro policy objectives – low inflation and sustainable output growth – and to consider financial instability implicitly through its effect on these fundamental variables. Financial instabilities that are significant enough to cause the expected path of output to move significantly above or below that of estimated potential output or of inflation to deviate from intentions are then a cause for concern, and policy can be eased or tightened as appropriate. Admittedly, determining what is “appropriate” over an

Table 1: Financial Stability As An Explicit Central Bank Objective Among Other Countries

Bank of Canada	“Regulate credit and currency in the best interest of the economic life of the nation, to control and protect the external value of the national monetary unity and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment so far as may be possible within the scope of monetary action, and generally to <i>promote the economic and financial welfare of Canada.</i> ”
Bank of England	“Objectives of the Bank of England shall be (a) to maintain price stability, and (b) subject to that, to support the economic policy of Her Majesty’s Government, including its goals for economic growth and employment.”  <i>Note: There is a memorandum of understanding between the Bank of England and the government that delineates the Bank’s responsibilities in the area of financial stability. It assigns the Bank of England responsibility in three broad areas including stability of the monetary system, stability of financial system infrastructure particularly in the area of payment systems, and monitoring of the financial system as a whole.</i>
Bank of Japan	“The objective of the Bank of Japan, as the central bank of Japan, is to issue bank notes and to carry out currency and monetary control.”  “In addition to what is prescribed by the preceding Paragraph, the Bank’s objective is to ensure smooth settlement of funds among banks and other financial institutions, <i>thereby contributing to the maintenance of an orderly financial system.</i> ”  “(Currency and monetary control shall be aimed at, through the pursuit of price stability, contributing to the sound development of the national economy.)”
ECB	“The primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, it shall support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the Community.”
ESCB	<i>“The basic tasks to be carried out through the ECSB shall be ... to promote the smooth operation of the payment systems.”</i>  <i>“The ECSB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.”</i>
Reserve Bank of New Zealand	“The primary function of the Bank is to formulate and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices.”  “In formulating and implementing monetary policy the Bank shall – (a) <i>Have regard to the efficiency and soundness of the financial system.</i> ”
Riksbank	“The objective of the Riksbank’s operations shall be to maintain price stability.”  <i>“In addition, the Riksbank shall promote a safe and efficient payment system.”</i>

extended horizon may involve complicated and difficult judgments about the short- and long-run effects of alternative policy prescriptions.

But there may also be cases in which a central bank faced with the prospect of financial instability needs to adjust policy by more than could be justified solely by the forecasts for output and inflation. In my view, though, this is perfectly consistent with a central bank that conducts monetary policy using forecasts for key macro variables as its primary guideposts but also considers the risks to the forecasts for those key macro variables.

An important dimension of the Federal Reserve System, as the name suggests, is its federal nature. In making monetary policy decisions, this is reflected by the composition of the Federal Open Market Committee (FOMC), which contains both Governors from the Board in Washington (DC) and regional Federal Reserve presidents. This shared responsibility fosters the exchange of important information for the conduct of monetary policy. Similar benefits of a federal system can be identified for other policies relevant to the preservation of financial stability. For example, responsibility for changes in the discount window rate is shared, as regional Federal Reserve presidents can propose them and the Board of Governors has to approve them. Similarly, responsibility for payment systems is divided in that the Board is responsible for oversight and the regional Federal Reserve Banks together with the private sector conduct the actual operations. Finally, there is also a fruitful interaction between the regional Reserve Banks and the Board in the area of bank supervision and regulation. A distinct feature of our federal central bank system is its mature character, so that information is shared effectively and the different processes and forms of interaction function smoothly.

### **The Degree of Activism in Pursuing Financial Stability**

The real question may not be so much whether financial stability should be a central bank objective, but rather how policymakers should weigh that objective in reaching policy decisions. There seem to be at least three basic issues that arise in contemplating the degree of activism that central banks should adopt in pursuing a financial stability objective, which I want to discuss now in concluding my remarks.

#### *Interactions With Other Policy Objectives*

In many cases, the relative weight a central bank places on financial stability may not be especially important if a financial stability objective is essentially auxiliary and tends primarily to reinforce the rationale for policy actions warranted by other objectives. However, there is some potential for perceived conflicts between the traditional macro policy objectives and a financial stability objective. Sometimes in tightening the stance of policy, for example, policymakers are concerned about the possibility that outsized financial market reactions could occur or that an associated decline in asset prices will reveal financial vulnerabilities in some sectors. At the margin, it would seem that a financial stability objective that was weighted quite heavily would tend to make that concern more pronounced, which arguably could hinder the effectiveness of monetary policy in securing price stability and sustainable real growth. Potential problems also can arise when central banks need to implement policy easings.

#### *Moral Hazard*

Another important issue raised by a very activist approach to the pursuit of financial stability objectives is how such an approach would affect the incentives of market participants. It seems quite possible that wide recognition that central banks place heavy weight on warding off financial instability could work to exacerbate moral hazard. Investors might conclude that a central bank with a very activist approach in addressing financial instability would be more inclined in many scenarios to step in to forestall a crisis. Moral hazard may arise at the macro level as well and, paradoxically, this perception could also contribute to a deterioration in financial stability over a long horizon.

### *Inadvertent Destabilizing Actions*

Still another concern that might be associated with a highly activist pursuit of a financial stability objective is the possibility of inadvertently contributing to greater variability in macroeconomic variables. As Milton Friedman famously cautioned many years ago, when the lags and impact of monetary policy actions are uncertain, activist monetary policy aimed at damping output fluctuations, albeit well-intentioned, can easily end up amplifying such fluctuations instead. One scenario in which this concern seems especially relevant today is the case of asset price bubbles. Central banks can and should lean against the wind to the extent that such asset price distortions affect the outlook for inflation and output. But to go beyond this to a policy of actively seeking to burst a bubble seems very problematic – there are simply too many uncertainties involved.

### **Andrew Crockett**

Let me begin by joining others in congratulating the ECB for their initiative in sponsoring this conference and for their warm hospitality. These ECB conferences seemed destined to join those at Jackson Hole as one of the high points in the calendar of central bankers' meetings. Unfortunately, however, Frankfurt in December is not Wyoming in August!

As a member of this closing panel, I was asked to consider a number of issues, including: risks to stability in the G3 economies; asset price volatility and the instability of financial institutions; the relationship between central banks and international financial institutions (IFIs) regarding financial stability; the contribution of central banks to the Financial Stability Forum; and the process of accession to the European Union. The last topic is beyond my competence, but I will try, in the time available, to make a few observations on the other four. Before doing so, however, allow me to note three background elements that tie my remarks together.

The first is that, over the past twenty years or so, the move from a government-led to a market-led international financial system (to use the well-known phrase of Padoa-Schioppa and Saccomanni) has been largely completed. The implication is that financial system developments have become much more sensitive to, and much more important for, economic activity.

The second is that open financial markets have grown enormously, and much faster than financial activity intermediated through institutions. However, a symbiosis has developed between markets and institutions. Institutions depend on continuous market liquidity to manage their risks; while the effective functioning of markets has come to depend increasingly upon the availability of liquidity and back-up services provided by financial institutions. Hence, the often-used dichotomy between markets and institutions is spurious: strong complementarities exist.

The third background element is what might be called the “paradox of central bank competence”. At a time when the natural competences of central banks, particularly in the area of ensuring stability, are more crucial than ever, they have been losing the instruments, particularly in the area of financial supervision, traditionally used to fulfil their role. The implication of this is that central banks need to find new ways of ensuring they maintain the necessary degree of involvement and expertise in stability-related issues.

### **G3 Risks**

I turn now to the first topic on which I have been asked to comment, that of risks in the main industrial economies. The central scenario for the industrial countries is one in which economic activity gradually strengthens over the next twelve months. However, it is widely considered that there are important downside risks to this generally benign scenario.

The G3 economies are now all in a phase of unwinding financial imbalances, of greater or lesser severity. The current unwinding phase is unusual by post-war standards in that it was not triggered by a rise in interest rates to head off an inflationary danger. To that extent, therefore, we are in uncharted waters. The risk of unpleasant surprises is significant although, as always, identifying specific vulnerabilities is difficult.

Among the imbalances that might prove troublesome if they were to unwind in an abrupt fashion are: high levels of consumer and business indebtedness; still-high equity values; payments imbalances among the major economies (particularly the US current account deficit); and the debt-servicing difficulties of emerging markets. Aggravating factors could be revelations of further corporate irregularities and unexpected developments in the geopolitical situation.

### **Asset Price Volatility and Financial Institutions' Distress**

One of the main lessons we have learnt from recent episodes of financial crisis concerns the relationship between the overall financial cycle and the strains faced by individual institutions. Consider the evolution of the typical financial cycle.

The upswing of the cycle usually begins when an improvement in the economic outlook, perhaps resulting from better economic policies, makes borrowing and lending more attractive. Credit expansion fuels economic growth and asset price rises. Stronger growth and higher collateral values in turn reduce measured risk levels and encourage further lending. Borrowers and lenders may become over-extended, with true risk being masked by the strength of asset prices. At some point the process goes into reverse, with cutbacks in lending, falling asset values and declining economic activity. The downswing in the financial cycle is typically accompanied by distress at the level of individual institutions.

Two aspects of this process are worth thinking about as we search for ways of reducing instability. One relates to the limitations of conventional risk measurement. In the stylistic financial cycle I have just described, perceived risk is at its lowest just before the triggering event that initiates the down-phase of the cycle (i.e., just when, with the benefit of hindsight, we can say that the true risk was greatest). The second is the wedge between individually rational behaviour and socially desirable outcomes. Individual lenders have an incentive to cut exposures when the economy weakens; but this just reinforces recessionary tendencies.

The general lesson is that risk is endogenous, although our conceptual framework typically treats it as exogenous. The policy implication is that it is important to maintain a macro-prudential perspective to complement the traditional micro-prudential one. Central banks have a key role to play here, given their liquidity creating powers, and their instinctive focus on overall systemic stability.

### **Central Banks and IFIs**

I can be relatively brief in commenting on the changing role of IFIs. The key point is that IFIs have had to develop new competencies, as financial weaknesses have become important

sources of vulnerability, alongside more traditional shortcomings of macroeconomic policy. IFIs are employing specialists in financial supervision and devoting greater resources to advice in upgrading financial sectors.

Care is needed in developing an appropriate strategy for this effort, however. Recent crises have taught us the need for a holistic approach to financial system stability. It is not just a question of getting banking supervision right. Nor even of extending strong supervision to non-bank financial intermediaries. The overall financial environment must be robust, including the legal system, accounting and auditing arrangements, corporate governance practices and mechanisms for disclosure and transparency.

And beyond the prudential management of individual institutions, it is important to take a macroeconomic view of the build-up of financial imbalances. More controversially, we may need to ask whether monetary policy has any role to play in limiting this build-up.

### **Central Banks and the Financial Stability Forum**

The Financial Stability Forum (FSF) was established in the wake of the Asian financial crisis, to bring together all the key authorities concerned with strengthening financial systems and preventing crises. These include Central Banks, Ministries of Finance and regulatory agencies from the principal financial markets, standard setting bodies, and the main international financial institutions. The value added of the Forum is: to improve information exchange among responsible authorities; to facilitate the identification of vulnerabilities in national and international financial systems; and to provide impetus to corrective measures to address weaknesses.

Let me just comment on a few aspects of the Forum's work that are of relevance for central banks. First, the involvement of accounting standard setters in the Forum's work has highlighted several issues that were not previously being adequately addressed. The debate on how to account for impaired assets (e.g. through loan provisioning or the adoption of "fair value" accounting) is revealing inherent tensions between the principle of prudence and that of fairness in the presentation of financial institutions' accounts.

A second aspect of the Forum's activities has been to show the relationship, which I discussed above, between the smooth functioning of markets and the health of financial institutions. Of course, markets have to be left alone to determine the prices of the instruments traded in them. But market dynamics have implications for the risk management of market players that fall outside the purview of any existing regulatory authority. Central banks are well placed to monitor market behaviour, and to identify destabilising developments.

Above all the Forum can add value in bringing together and reconciling different perspectives on the causes of financial instability. In that way it can add to our common understanding of the way the system functions, and improve our policy prescriptions for addressing its weaknesses.

## Alexandre Lamfalussy

I propose to focus my remarks on the regulatory process in Europe. More specifically, on the prospective extension of the four-level approach designed almost two years ago for the securities markets by the Committee of Wise Men to banking and insurance – indeed, to the whole of the financial industry. To begin with the substance of what I am going to say: while I am naturally flattered by this initiative and while I believe that on the whole it should be supported, I *do* have some queries and concerns.

Let me remind you of some of the key features of this four-level approach. The first and arguably most important proposal was to implement at the European level the distinction between primary and secondary legislation which is of common practice in all our countries. It is this lack of distinction which bears the major responsibility for the striking shortcomings of the current regulatory process: its slowness, its rigidity – i.e. its inability to adjust to the fast-changing world of finance –, and the often poor quality of the directives. The second proposal – mandatory consultation of all interested parties throughout the whole process – was derived from the observation that we did not like the “top-down” approach which prevailed in the regulatory process. Quite specifically we suggested that consultation should start *before* the Commission undertakes drafting a directive. Thirdly we came out quite strongly in favour of full transparency without which there can be no genuinely effective consultation. I may perhaps add that we tried to practice ourselves what we were preaching for the legislators and regulators. We entered into a genuine dialogue with anyone who cared to respond to our queries, and we learned a lot from the reactions of all interested parties.

The final report which was published in February 2001 was well received by the vast majority of market participants, was accepted almost completely by ECOFIN and was endorsed by the Stockholm Summit in March 2001. The European Parliament had some reservations, but after lengthy discussions an agreement was reached, and the implementation of our proposals is now in full swing. Not unexpectedly there are some teething troubles – bad habits die hard – but I am confident that they will be overcome.

Would it be a good thing to apply the four-level approach to the other segments of the financial industry? I shall limit my observations to banking with which I have far more familiarity than with, say, insurance.

Co-operation between bank supervisors has more than thirty years behind it, the experience having started at the Bank for International Settlements at the G10 level and then, somewhat later, within the European Community. Compare the length of this experience with co-operation between securities regulators, which has just begun. As a result, harmonisation of banking regulation is now reasonably well advanced. I would add that, much to their credit, bank regulators have grown accustomed to systematic consultation. Basle II has run into difficulties not because of any lack of consultation, but because consultation of a wide variety of banks revealed a few crucial issues and a host of minor ones.

This is not to say, however, that all is fine with bank regulatory and supervisory co-operation within the EU. Bank regulation has been well harmonised, as I just said, but the same does not apply to supervisory practices. A committee analogous to the Committee of European Securities Regulators (CESR) could play a very useful role in this respect. Perhaps even more important, the lack of distinction between primary and secondary legislation is a source of inefficiency in the field of banking regulation as much as it is in the securities markets. I just cannot see how the voluminous and very detailed Basle II draft agreement could be implemented (and its details changed in response to new developments) without having recourse to the four-level approach. All in all, extending this approach to banking

seems to be a sensible enterprise – especially if the operational details of this extension are designed in a way which takes into account the lessons to be drawn from the ongoing implementation of the four-level approach to the securities markets.

### **What, Then, are My Concerns?**

The first has to do with the way in which this initiative was launched. The Committee of Wise Men outlined its four-level approach *after* having identified, thanks to extensive consultations, the obvious shortcomings of the regulatory process in the security markets and designed this approach as a response to this identification exercise. The ECOFIN Council took its initiative without undertaking any inquiry as to the weaknesses (or strengths) of the current regulatory process in banking or insurance. I do not appreciate this “top-down” approach. Admittedly, this has now been rectified at least to some extent. The report of the EFC to the ECOFIN Council has been published a couple of weeks ago, for open consultation. This is not equivalent to what I consider to be an essential “initial” consultation, but it is still better than no consultation at all.

My second concern is about the possible political fall-out of this initiative. The compromise reached with the European Parliament on our four-level approach is based on a very delicate balance between the respective roles and powers of the Council, the Commission and the Parliament. I hope that the Ministers will exercise adequate prudence and negotiating skill to preserve this balance.

Now let me come to my third concern which is directly relevant for the general topic of this panel. This is about the *content* of regulations. The main focus of securities markets regulators is very different from that of banking regulators. Prudential considerations, while not completely ignored, are not at the centre of their interest. They want to harmonise regulations at the European level so as to develop orderly, transparent, efficient securities markets and to provide investors, especially retail investors with appropriate protection. “Fairness” and “level playing fields” are key concepts. By contrast, bank regulators’ main (though of course not exclusive) focus is on prudential matters. The reasons for this are straightforward. Despite all changes in our financial structures, banks are still at the centre of liquidity creation and are the key operators of the payment systems. Large-scale insolvencies among our banks are liable to lead to a systemic crisis. Hence the mandate given to regulators to see to it that banks are capable of absorbing “external” shocks, such as sharp and large declines in securities prices or exchange rate fluctuations, and that at the same time they resist their inclination to produce a crisis by their own imprudence.

These prudential concerns are of major importance in today’s financial globalisation. I remain convinced that what our Committee said in its final report remains valid: namely, “that large, deep, liquid and innovative financial markets will result in substantial efficiency gains ...” but “greater efficiency does not necessarily go hand in hand with enhanced stability”.

Here we come to the role of central banks in bank supervision and regulation. The starting point is straightforward. There is agreement, I believe, on the crucial role to be played by central banks in crisis management. Whenever there are good reasons to believe that a systemic crisis is about to erupt, central banks have the duty to increase global liquidity, and they have the duty to contribute to the smooth functioning of the payments system. When it comes to bailing out individual banks whose solvency is impaired, the responsibility shifts to governments since taxpayers’ money may be involved. But in a crisis situation the demarcation line between a “just” illiquid and a “plainly” insolvent institution is highly

uncertain. As a result crisis management implies a shared responsibility between governments and central banks. The practicalities of managing this shared responsibility may be open to debate, but surely not its principle. So far so good.

But what about the role of central banks in crisis prevention? When central banks are in charge of micro-prudential regulation and/or supervision, their role is well defined. But the point I would like to make is that even when they are not, they should be institutionally involved in crisis prevention, for two good reasons. One is that it is well-nigh impossible to define where crisis prevention stops and crisis management begins. For a central bank to decide that it is its duty to pump liquidity into the system because there are signs of an impending systemic crisis, it cannot rely exclusively on information provided by the market – such as, for instance, widening spreads. It must also have access to the supervisors' insight into what is happening in individual banks.

By the same token – and this is the second reason – it is hard to make any operationally clear distinction between micro and macroprudential concerns. I struggled with this distinction during my eighteen years at the BIS, and I am sure that the problem has not gone away. Take Basle II. One of the main concerns that have emerged in the consultations is that, while it is fine that individual banks apply strict risk control techniques, if all of them apply the same techniques at the same time, the global effect will be pro-cyclical, with obvious implications for systemic stability. Or take the recent example of banks successfully transferring their credit risks to institutional investors and insurance companies. This has so far been a good thing for the banks and probably also for the financial system as a whole – as long as we can assume that the willing risk takers knew what they were doing and that the banks did in fact get rid completely of the transferred credit risks. Two big “ifs” the validity of which cannot be assessed by looking at a bank's position in isolation.

These are the main reasons for which I would plead in favour of institutionally involving the ESCB not only in Level 3 (which is accepted by the EFC paper submitted for consultation) but also in Level 2.

May I conclude my remarks by raising an awkward issue? There seems to be fairly general agreement that the collapse of the equity market bubble, and the associated increase in asset price volatility, bears some responsibility for our current hardships. Could or should central banks try to rein in the markets' proclivity towards irrational exuberance? If not, could or should anybody care about it?

## General Discussion

After the presentation by the panellists, **Christian Noyer** encouraged the audience to ask questions. **Gertrude Tumpel-Gugerell** (Oesterreichische Nationalbank) opened the debate by posing a question related to crisis resolution. She wondered how the burden-sharing of the national treasuries in the case of banking crises would be different from the burden sharing under present institutional arrangements at the EU level. In particular, she invited Charles Goodhart to elaborate on how this would match with the concept of co-operation between institutions at the European level. Goodhart responded that while a framework for burden-sharing at a European supervisory level has not been designed yet, it should not be considered as impossible. He added that increased co-ordination would be an important first step, emphasising that much more thinking on the matter needs to be undertaken.

The issue of burden-sharing was also raised by **Aerdt Houben** (De Nederlandsche Bank), who asked Mr. Goodhart whether it would make sense to define a European burden-sharing arrangement when a significant fraction of EU banks are expanding outside the EU. A European framework might not be appropriate in light of the increasingly international nature of banks' activities, even across continents. Goodhart noted that EU banks' involvement abroad concerns mainly wholesale markets, whereas currently retail markets are essentially national in the EU. However, this situation is changing as some accession countries already have an important level of foreign penetration. The Polish banking sector, for example, is mainly controlled by foreign banks. He noted that any framework would need to be discussed first at the EU level and then extended to other geographical areas.

**Ms. Tumpel-Gugerell** also addressed Roger Ferguson on the financial stability framework of the US. She wondered whether the large number of public institutions involved had a negative impact on its functioning and whether it would be desirable to reduce the number of US regulators. Given some existing structural problems, she also inquired about his views on the reasons why there is so much more debate on the European framework than on the US one. Mr. Ferguson recognised the potential shortcomings of the present arrangements in the US and mentioned that, contrary to what was suggested, these are frequently under discussion. However, in his opinion the various levels of co-ordination required, the complexity and the time-consuming nature of the arrangements partly reflect the US federal system based on "checks and balances". Ferguson also emphasised the advantages coming from a positive kind of competition among regulators. For example in some cases the Office of the Comptroller of the Currency (OCC) acted quickly to perceived imbalances, while in others the Fed slowed down rushed decisions. In contrast to Europe and despite the heavy weight of the federal system, the absence of national interests and the ongoing intense and long debate on contentious issues in the US likely allow a better timing in taking cumbersome decisions.

**Patrick Honohan** (World Bank) wondered what role financial stability considerations play in the monetary policy process. In particular, he inquired about conflict resolution when price and financial stability criteria recommend opposite policies. Roger Ferguson emphasised that financial instability is seen as a stress-testing element in the monetary policy making of the Federal Reserve, since the absence of price stability is likely to increase the risk of financial

instability. When available to central bankers, other tools, such as payment system oversight and banking supervision can also be used to increase financial stability, thus allowing a more focused implementation of monetary policy for price stability objectives. He recognised the possible trade-offs between price and financial stability and exemplified how a different weighing of the two objectives might have resulted in very different decisions taken by the Board of Governors.

**Rafael Repullo** (CEMFI) challenged Charles Goodhart's view that the centralisation of crisis management in Europe can only take place after the establishment of a single fiscal authority. He defended that only in major crises there would be need for treasury involvement, as most of the time the funds would come from deposit insurance agencies. Goodhart replied that EU deposit insurance schemes do not cover important risks, such as inter-bank exposures, which are often responsible for contagion throughout banking systems. Therefore, the role of the treasuries cannot be downplayed.

**Michael Bonello** (Central Bank of Malta) evoked Alexandre Lamfalussy's views on the legitimate institutional involvement of central banks in banking supervision even when they are not the supervisors. He invited the panel to elaborate on whether we are to expect a dialogue at the European level on a practical and effective way to make progress in this regard.

In the context of concluding remarks, **Tommaso Padoa-Schioppa** centred on why and how central banks should be involved in financial stability, and on the appropriate EU-level framework for this purpose. On the first point he underlined that the task is complex, owing to the lack of a clear definition of "involvement". Academics and policy makers seem to agree that central banks should be involved in financial stability but the mode of such involvement is far from being analytically or institutionally defined. One important first step would be to operationally define the specific co-ordination arrangement between central banks and supervisory agencies, starting from the premise that both kinds of institutions have a common ground of operation. He recalled that the involvement of central banks is essential, even if they do not supervise banks, both because they are central, thus being key players in the daily functioning of the financial sector, and because they are banks, thus needing to know their counter-parties.

On the specific EU arrangements, Mr. Padoa-Schioppa noted that the common currency and payment system created a single euro area banking system and brought about the sharing of systemic risks on a cross-border basis. On the other hand, the institutional landscape remains fragmented, with financial regulation designed to a large extent at the EU level, a single monetary policy conducted at the euro area level, and fiscal and supervisory policies remaining at the national level. This represents an unprecedented challenge. Padoa-Schioppa's view was, however, optimistic, foreseeing in principle the possibility of managing in an effective way the co-existence of national and EU institutions pursuing the goals of financial and price stability. He concluded that further progress was needed in some areas. As an example, he referred to the national banking supervisory rule-books and the need for enhanced consistency of these across EU countries. This objective could be achieved by incorporating them into the EU secondary legislation and by intensifying supervisory co-operation in the implementation phase.



## Closing Remarks

Lucas Papademos

### 1. Introduction

We are approaching the end of this one and a half-day Conference. Although some of you may be somewhat exhausted, I will ask you to bear with me for a few more minutes. You may well wonder: “What else can be said? We have been talking about the European financial system for about ten hours.” Well, you may have underestimated the resources and stamina of central bankers! But the truth is that I have asked myself the same question. In the end, I thought it would be useful first to draw attention to some general conclusions with relevance to policy-making, which have emerged from the Conference. Second, I will focus on the role the ECB can play in promoting financial market integration and helping safeguard financial stability in the euro area.

The comprehensive and thought-provoking papers which were presented, the challenging commentaries, and the insightful and stimulating policy panel discussions have all contributed to improving our understanding about the ongoing transformation of the European financial system and its implications for the efficiency and stability of the economy. I would like to warmly thank the speakers, panellists, discussants and chairpersons of the sessions for their contributions to this second ECB Central Banking Conference. And I would also like to thank all those who have attended this Conference and participated in our lively debates. Identifying the driving forces of the current transformation of the European financial system and assessing its implications for the functioning of the economy and for shaping the impact of policies helps guide the actions of policy-makers, including central bankers. The subject is rather complex and, as is often the case in economics, clear-cut answers may not exist. Bringing together experts with different backgrounds has made it possible to examine the issues from different perspectives, employ various approaches, and discuss and test alternative theories. I believe this Conference has made a useful contribution to the theoretical analysis and the policy debate on the European financial system.

The three academic speakers have painted a clear picture of various aspects of the current state of the European financial system. Professor Dermine has stressed how the increasing complexity of the banking system calls for Europe-wide co-ordination of monitoring and supervisory functions. However, according to Professors Rajan and Zingales, political economy considerations suggest that excessive concentration of powers might hamper the transition towards a more market-based financial system. Finally, Professor Danthine pointed out how the several existing settlement systems, stock exchanges and taxation regimes for financial transactions constitute significant barriers to a truly unified financial market.

Looking at the continuing transformation of the European financial system, we see that there are some common threads linking these three contributions. First, they all recognise that this transformation has far-reaching implications for financial integration. Second, it is acknowledged that the euro played a determining, if not catalytic, role in igniting and fostering such a transformation. Third, there seems to be a general view that these developments have beneficial effects on the performance of the European economy.

I will now focus on the role the ECB can play in this transformation process. First, I will explain why the ECB has a strong interest in the further development and integration of the

European financial system and wants to actively contribute to achieving these goals. Second, I will give some examples of how the ECB is contributing to the integration of financial markets and to the safeguarding of the stability of the financial system. I will relate my remarks to views expressed during this Conference regarding the role of the ECB and of other central banks in this process.

## **2. Financial market integration and central bank policy**

Why should the ECB be interested in financial market integration? Financial markets help the matching of agents who have a surplus of funds with those with a shortage. Evidence abounds that well-functioning and well-regulated financial markets are crucial for the performance of an economy. Developed and integrated financial markets are a precondition for reaping the full benefits of Economic and Monetary Union, as they permit an efficient allocation of resources, offer a broader scope for risk diversification and increase market liquidity, thus ultimately reducing the cost of capital.

In addition, the degree of development of financial markets has consequences for the transmission of the effects of monetary policy. Indeed, the more sophisticated markets are, the more sensitive they become to central banks' policy signals and communication. Market expectations about future monetary policy decisions and future inflation rates are crucial determinants of the level of long-term interest rates, of wage developments and of other variables which affect the real economy. Moreover, a financial system with well-developed derivative and capital markets, which are intrinsically forward-looking, can provide central banks with useful and timely indicators about future economic developments.

If these propositions are true in general, they are even more so for the euro area. Following the introduction of the single currency and the implementation of the single monetary policy, market segmentation and underdevelopment contributes to keeping transaction costs high, reducing market liquidity and increasing the risk of asymmetric effects in the transmission of monetary policy. These arguments explain our fundamental interest in a well-functioning and integrated European financial system and our full support of initiatives aimed at achieving this objective.

## **3. The role of the ECB in financial market integration**

Let me now dwell on some initiatives the ECB has taken to promote financial market integration and improve the functioning of financial markets.

As the papers presented in this Conference have shown, financial integration in the euro area is steadily advancing, favourably influenced by the introduction of the euro but also by the pressure of market forces. Since market participants are the primary beneficiaries of financial integration, as long as their incentives are properly aligned, unleashing competitive forces should be regarded as the main means of eliminating inefficiencies and promoting liquid and integrated markets. Market forces alone, however, may not always be able to drive financial integration to completion. The national financial systems are the result of decades of relatively independent evolution. They are characterised by different infrastructures and regulatory and taxation regimes. Competition may not suffice in such a situation and public action may be required to remove these types of barrier. This is the reason behind many of the policy initiatives of the European Commission, such as the Financial Services Action Plan and the Lamfalussy Committee of Wise Men.

There are situations, however, in which neither competition, nor public action can bring financial integration forward. I am referring to cases where co-ordination between market participants is needed. In such situations the ECB can act as a catalyst and a co-ordinating device for market participants.

A first, insightful example is the creation of the EONIA interest rate index, for the overnight money market. The EONIA index is neither the consequence of legislative action nor the outcome of competitive pressures. Rather, it emerged as a result of co-ordinated actions by market participants. The ECB was instrumental in making such co-ordination possible.

Another example of the ECB's role in fostering the emergence of co-ordinated solutions between market participants is provided by our recent initiative on behalf of the *ACI Financial Market Association*. The association has realised the potential need for collective action to overcome the present fragmentation of the market for short-term securities. They asked us to host on their behalf a public consultation on how the European short-term securities markets can be further integrated. We welcomed their initiative and provided them with our full logistical support.

A third example is the ECB's active contribution to the integration of the repo market. The ECB and the Eurosystem as a whole take a special interest in repos, as they are one of the main instruments used for the regular refinancing operations. The ECB and the national central banks, together with market associations, have taken initiatives aimed at developing the repo market. Ultimately, their common effort has led to a substantial convergence of European legal systems towards a set of rules ensuring the legal safety of the repo contracts. This, in turn, has made it possible to address one of the main obstacles to the further integration of the repo market, namely the lack of standardised and harmonised legal documentation. A new multinational standard agreement has been created, the European Master Agreement, which could gradually develop into a standard for the domestic euro area repo market. The ECB officially welcomed the introduction of the European Master Agreement and has decided to use it for the management of its foreign exchange reserves and own funds.

Furthermore, by deepening our understanding of the functioning and evolution of the European financial system and its interaction with the real economy, we can muster support for speeding up financial market integration, in addition to enhancing our knowledge about the effectiveness of the single monetary policy. For these reasons, the ECB promotes research on the impact of the euro on financial markets. Two research network initiatives have been launched under the aegis of the ECB: the Monetary Transmission Network and the ECB-CFS network on "Capital Markets and Financial Integration in Europe".

There is a final issue I would like to touch upon – the role of the ECB in maintaining financial stability, which was extensively discussed by the policy panel. Tommaso Padoa-Schioppa convincingly argued that enhanced co-operation with financial regulators and supervisors will need to complement the use of central banks' own tools for monitoring financial stability, whenever central banks are not entrusted with supervisory tasks. I share the view that the micro and macro-prudential dimensions of monitoring financial stability, which are respectively often associated with supervisory authorities and central banks, must not be seen as separate activities, but as joint and complementary ones aimed at the common goal of financial stability. Effective micro-prudential supervision looking at the soundness of individual institutions is crucial, but in itself not sufficient. A macro-prudential perspective on system-wide developments, as well as on shocks and contagion links across institutions, is necessary to understand the threats to financial stability and to act in a pre-emptive manner.

For this reason, the ECB is active in promoting the co-operation and exchange of information between central banks and supervisory authorities. The work of the Banking Supervision Committee of the European System of Central Banks is a clear example of this co-operation, reflected in many publications, such as the reports on credit standards and the impact of a stock market decline on European banks. The ECB itself is increasingly active in bringing together all the relevant knowledge concerning euro area banks, markets and infrastructures and in developing research on financial stability issues.

The euro area is clearly faced with specific challenges relating to safeguarding financial stability. As financial markets and institutions internationalise and as the common payment system and the interbank market link banks closely to each other in a system which may be more prone to contagion risks, a geographically limited view on financial stability would be insufficient. This highlights the need for the Eurosystem to contribute, as required by the Treaty, to the preservation of financial stability. The Eurosystem is in a good position to assess the soundness of the financial system and its key systemic components from a euro area wide perspective.

#### **4. Conclusions**

I do not wish to abuse your patience, but I would like to sum-up by stressing the following points. First, the introduction of the euro has already had significant and long-lasting effects on the European financial system and will continue to have a positive influence on its evolution in the years to come. Second, although the monetary integration of the euro area has essentially been achieved, its financial integration – despite the progress made – is far from being complete. It is necessary to speed up this process and, in parallel, to ensure that financial institutions and markets are effectively supervised in the new risk environment. Third, the ECB is taking a proactive stance to give a further impetus to the integration of European financial markets, as this will influence favourably the performance of the euro area economy and it will also enhance the effectiveness of the single monetary policy. In addition, the ECB and the European System of Central Banks are looking forward, in the context of the new institutional arrangements, to contribute in various ways to the maintenance of financial stability in the European Union.

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