

ASSESSING THE PERFORMANCE OF FINANCIAL SYSTEMS

ARTICLES

Assessing the performance of financial systems

This article examines the performance of financial systems using a functional approach. The better financial systems perform their main functions, the more they overcome frictions in the process of allocating capital. While the expanding theoretical and empirical economic literature suggests that a better functioning financial system is conducive to economic growth, it has focused mostly on developing economies. This article concentrates on industrialised economies. It first develops a comprehensive conceptual framework for analysing financial system performance. A selection of economic indicators is then used to illustrate how performance may be assessed. Financial systems in euro area countries and the euro area aggregate are compared with those of other major industrialised countries, both inside and outside Europe. The indicators used suggest that the performance of a financial system can vary considerably across different dimensions. Similarly, there is a fair amount of heterogeneity across euro area countries. Some financial systems that score highly in a particular dimension may not necessarily do so in another. For a comprehensive assessment of performance, it is therefore necessary to look at many indicators together. Nevertheless, the differences in performance identified seem to suggest that there is further scope for structural reforms in financial sectors in the euro area. The efficiency gains that can be expected from such reforms would also benefit the ECB as they would support the smooth implementation and transmission of monetary policy.

I INTRODUCTION

The functioning of financial systems has received special attention in European public policy in recent years. A well-functioning financial system permits an economy to fully exploit its growth potential as it ensures that investment opportunities receive the necessary funding at minimum cost. Accordingly, the European Union has made structural financial sector reforms a priority in the Lisbon agenda. For example, the European Commission's Financial Services Action Plan (1999-2004), which has as an important objective greater European financial integration to complete the single market for financial services, is currently being implemented by Member States. The European Commission has recently also issued a Green Paper on Financial Services Policy for 2005-2010.¹ Furthermore, the financial sector plays an important role in the implementation and transmission of the ECB's monetary policy. This is a major reason why the ECB has a special interest in the functioning of the euro area financial system.² Finally, the functioning of financial systems is relevant for financial stability.

The article presents a broad framework for the analysis of financial system performance. It

starts from the well-established functions of a financial system and covers all of its dimensions that are likely to affect growth. For each dimension, a group of economic indicators can be derived that describe how well a given financial system performs its functions. The article presents a selection of indicators to illustrate how the framework can be applied. For a fully comprehensive assessment of performance, one may however have to look at a greater number of indicators. In contrast to most of the existing literature, the focus is on industrialised countries, covering euro area countries as well as the euro area aggregate and comparing them with major countries inside and outside Europe.

1 In August 2005 the Eurosystem contributed to the public consultation by the Commission on the Green Paper. The Commission plans to publish the final policy programme as a White Paper in November 2005. The ECB recently published indicators of financial integration (see "Indicators of financial integration in the euro area", September 2005). The Commission publishes a complementary set of indicators in its "Financial Integration Monitor" (see http://europa.eu.int/comm/internal_market/finances/cross-sector/index_en.htm).

2 The interest of the ECB in financial sector issues has been illustrated particularly in the Monthly Bulletin article "Recent developments in financial structures of the euro area" (October 2003), the proceedings of the Second ECB Central Banking Conference (see V. Gaspar, P. Hartmann and O. Sleijpen (eds., 2002), *The Transformation of the European Financial System*) and the first ECB Financial Stability Review (December 2004).

The next section presents the main functions of a financial system and reviews the economic theory about how market imperfections and frictions can reduce its contribution to growth. The third section provides a comprehensive framework for assessing performance, structured along various dimensions of a financial system. It also displays a selection of indicators, covering in particular the size of capital markets, the completeness of markets and financial innovation, the ability of financial systems to process information, the effectiveness of corporate governance and the efficiency of legal systems. The last section draws some conclusions.

2 FUNCTIONS OF A FINANCIAL SYSTEM AND MARKET IMPERFECTIONS

It has long been noted that finance affects growth.³ A financial system influences the allocation of scarce resources across space and time. In order to exploit the growth potential of an economy, resources need to be allocated towards the most valuable investment opportunities. The allocation is affected by the costs of acquiring information, enforcing contracts and making transactions. This applies both to firms and households. Firms may find it very costly to raise external financing if outside investors know little about how their money is being invested. Households can neither optimise their consumption over their lifecycle nor optimally invest in their human capital if they cannot borrow against future income or if a financial system does not allow them to tap into their illiquid wealth such as housing.⁴

When frictions hinder the flow of resources to the best possible uses, economic growth suffers. A financial system aims to overcome frictions, since it:⁵

- produces information about potential investments and the possibilities for allocating capital;

- monitors investments and ensures that investors and savers are paid back according to the contracts they hold;
- allows the trading, diversification and management of risk;
- mobilises and pools savings; and
- facilitates the exchange of goods and services.

2.1 PERFECT MARKET BENCHMARK

The benchmark case of a perfect market illustrates how: (i) frictions lead to the establishment of a financial system; (ii) a financial system functions in such a way as to overcome these frictions; and (iii) a financial system thus affects growth.

Economic theory states that a perfect market is characterised by a frictionless flow of capital ensuring that all valuable investment opportunities are exploited optimally. Even though agents transfer their capital, and thus give up control, to others who may have different information or different interests when investing, it is possible to specify at no cost contracts that cover all possible future contingencies. Similarly, households can achieve optimal consumption smoothing and risk sharing over their lifecycle. In a perfect market where capital flows without frictions, the organisation of economic activity, i.e. firms, institutions and the location of economic agents, is irrelevant. It does not matter whether savers and investors are the

3 In *The Theory of Economic Development* (1912), Joseph Schumpeter explains that a well-functioning banking sector spurs technological progress by identifying new investment opportunities and channelling scarce resources towards them. In *A Theory of Economic History* (1969), John Hicks argues that the financial system played a crucial role in British industrialisation by mobilising the necessary capital.

4 See F. Allen and D. Gale (1997), "Financial markets, intermediaries and intertemporal smoothing", *Journal of Political Economy*, 105, pp. 523-546, for an analysis of how the existence of long-lived intermediaries in a financial system allows households to insure against wealth shocks.

5 See R. Levine (2004), "Finance and growth" in P. Aghion and S. Durlauf (eds.), *Handbook of Economic Growth* (Amsterdam: North-Holland, forthcoming).

same person or not. A perfect market achieves the same allocation of capital and level of investment as if each owner of an investment opportunity, e.g. a firm or a household, was already endowed with sufficient resources to invest up to the optimal point (where the marginal benefit equals the opportunity cost).

It is clear that in reality markets are not perfect and frictionless. This article considers how real world frictions lead to a departure from the perfect market benchmark and how they impede the flow of capital and thus distort investment decisions. It then analyses how a financial system overcomes these frictions using the five functions mentioned previously to structure the analysis.

2.2 FRICTIONS IMPEDING THE FLOW OF CAPITAL

First, economic agents neither share nor have access to the same information. Investors, for example, provide the investment capital but delegate the investment decision to a manager, since he often has better information about the use of capital. When an investor no longer has control over his funds, he demands a premium that increases the cost of capital, since he needs to be compensated for not knowing exactly how his funds are being used by the manager. The increase in the cost of capital makes investing more expensive and leads to underinvestment relative to the perfect market benchmark. Bank financing and specialised venture capital financing are responses of a financial system to this kind of information friction. In both cases, uninformed investors hand over their resources to more knowledgeable intermediaries, who have learnt from financing similar projects. In addition, the intermediaries pool the resources of many investors and can therefore reach a sufficient scale to cover the fixed costs of acquiring information that arise for example from setting up a credit screening mechanism. Intermediaries also address the “public goods” problem, i.e. the difficulty of preventing others from free riding on one’s costly information. Stock markets support the acquisition and

dissemination of information about firms mainly through the price mechanism. Trading in a large and liquid market means that prices reflect the information of many traders who have an incentive to acquire valuable information.

Second, a financial investor – who owns the funds – and his manager – who de facto controls them – may not share the same investment objectives. While investors are usually interested in value maximisation, as in the perfect market benchmark, managers may be driven by career concerns or perks, or, in extreme cases, they may even extract resources for themselves. In the same vein, the interests of a household may not be identical to those of the bank it borrows from, since a bank is mainly interested in the repayment of its loans. When investment decisions are no longer governed by value maximisation, they will be distorted relative to a perfect market and growth will be hampered since scarce capital is not used efficiently.

Several arrangements in a financial system address the control problem. Banks for example serve as “delegated monitors”, i.e. a bank acts on behalf of many depositors, thus avoiding a wasteful duplication of monitoring expenses. Stock markets allow investors to exert pressure by selling their shares. The buying or selling of shares influences a company’s stock price with possible consequences for management, e.g. its dismissal after a poor stock price performance. More directly, stock markets exercise control through voting at shareholder meetings or, in extreme cases, through takeovers.

Third, capital is dispersed among many different people who have different time and risk preferences. The perfect market benchmark assumes that capital is fully liquid, meaning that financial assets can be traded and converted into real assets without frictions. In reality, physical assets used in production and human capital are illiquid, e.g. it is neither easy to buy or sell production plants, nor to borrow against future expected income.

To finance production, capital must be committed in many cases for a long period of time, but a saver does not typically like relinquishing control over his assets for long periods. A saver's investment horizon is often shorter than the investment horizon of a production process. Households are subject to liquidity shocks, i.e. they may need quick access to their capital in order to cover unforeseen contingencies. Banks and stock markets mitigate the adverse effects of such liquidity shocks. A bank transforms short-term liquid deposits into long-term illiquid loans. A bank therefore makes it possible for households to react to liquidity shocks and to withdraw deposits without interrupting production processes. Stock markets similarly reduce liquidity risks by allowing stock holders to trade their shares, while firms still have access to long-term capital.

Fourth, in the perfect market benchmark, the location of capital and economic activity does not matter since financial contracts can be written to cover all possible future contingencies. But in reality economic capital is dispersed across many investors. Without access to multiple investors, many production processes would be constrained to sub-optimal scales. A key function of a financial system is therefore the pooling and mobilisation of scarce and dispersed capital. Having standardised financial contracts, such as bonds or shares, lowers the transaction costs of trading in public markets. Without such standard contracts, firms would have to enter into a large number of bilateral agreements, specifying a large number of contingencies, instead of being able to tap into a large pool of readily available capital. A pooling of resources also occurs through financial intermediaries, where a large number of depositors entrust their funds to a "middleman" who is then able to invest on a large scale on their behalf.

Finally, and closely related to the previous point about the location of economic activity, a financial system facilitates the exchange of

goods and services. In order to exploit the full growth potential of an economy, specialised investments need to be made and households need to be able to finance the consumption of goods. Greater specialisation allows higher returns to be earned, because it enables a better use of the information and skills that are specific to a production process. But greater specialisation also requires more coordination and transactions than an autarkic environment. At the same time, the financing of consumption over time also requires financial arrangements. Households for example need to be able to save or to borrow against their future stream of income.

In the perfect market benchmark, goods and services flow without frictions across production processes and to consumers. Information asymmetries and transaction costs, however, cause frictions to build up in this exchange. A financial system overcomes these barriers by providing suitable specialised instruments such as derivatives, which can fix prices in advance (e.g. forward contracts). Credit cards, consumer credit and mortgage refinancing are channels through which a financial system facilitates the consumption of goods and services by the household sector.

To sum up, a financial system performs several functions to ease the flow of resources from owners of capital, e.g. households which possess savings, to the most valuable investment opportunities in an economy in the presence of a number of market imperfections.⁶

3 DIMENSIONS OF FINANCIAL SYSTEM PERFORMANCE AND SELECTED INDICATORS

Having reviewed the main elements of economic theory explaining how a financial system helps to overcome the frictions that can

⁶ It should be noted that the "theory of the second best" shows that overcoming one of those frictions alone does not mean that the market will approach the perfect market benchmark. Reducing one friction in isolation may actually worsen other frictions.

hinder the efficient flow of savings into investment, one can go ahead and identify groups of characteristics/dimensions that lend themselves to an assessment of a financial system's performance of its functions. In this section, this is done by deriving a comprehensive framework of dimensions to be covered. These dimensions are treated in the following eight sub-sections. Moreover, a number of economic indicators are selected to illustrate how the theory and framework can be applied. These two steps are undertaken drawing extensively on the existing empirical evidence on the link between finance and growth⁷ and paying attention to dimensions and indicators particularly relevant for industrialised countries. Where possible, the analysis shows the evolution of an indicator over time, distinguishing euro area countries and the euro area aggregate from non-euro area European countries and other major countries.

A caveat is that data availability constrains the choice of indicators here. The presentation furthermore focuses only on a selection of indicators that can be linked to the finance and growth literature. It would be useful to have several indicators for each dimension, since a single measure cannot usually give a complete and balanced picture. The conclusions drawn here are therefore tentative.

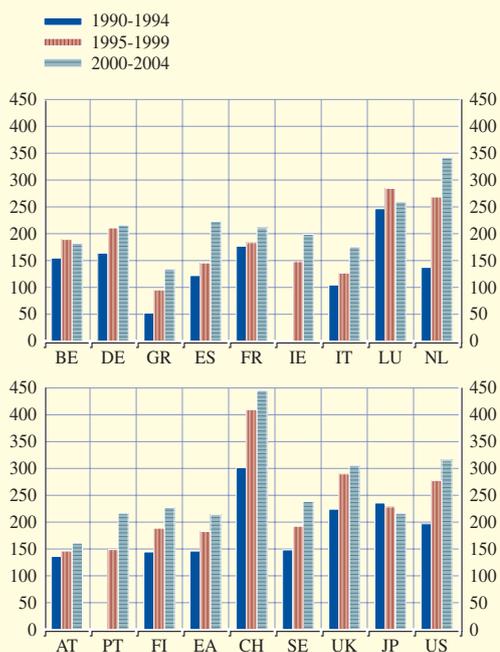
3.1 SIZE OF CAPITAL MARKETS AND FINANCIAL STRUCTURE

Financial structure is traditionally measured in terms of the relative size of different capital markets, e.g. loan versus securities markets. When measuring the size of a market, it is intended to capture its importance: a larger financial market means that more capital is channelled through it. For example, a larger market for bank loans indicates that more intermediation and thus more monitoring of loans and pooling of resources take place in a financial system.

There has also been an extensive debate on whether bank-based or market-based financial

Chart 1 Size of capital markets

(percentages of GDP)



Sources: BIS, Eurostat, IMF International Financial Statistics, World Federation of Exchanges and ECB calculations.

Notes: Sum of the ratios of stock market capitalisation, bank credit to the private sector and domestic debt securities issued by the private sector to GDP. For the Netherlands and Portugal the data are up to 2001, while for Luxembourg data exclude debt securities. Euro area bank credit, stock market capitalisation, domestic debt securities and GDP are the sum of euro area countries' figures.

systems perform better. On the one hand, banks can exploit scale economies in acquiring information, exercise control through monitoring, and form long-run relationships with firms that reduce information asymmetries. On the other hand, banks may exploit their dominant position vis-à-vis a borrower, they may have a bias towards prudence and they do not necessarily act in the interest of firm owners. More recently, the debate has however shifted away from pitting markets against banks. Rather, it is recognised that both perform valuable functions in a

⁷ See A. Demirgüç-Kunt and R. Levine (eds., 2001), *Financial Structure and Economic Growth* (MIT Press) and R. Levine (2004), *op. cit.*

financial system. Some functions may even require complementarities between bank- and market-based financing.⁸

Chart 1 displays the sum of stock market capitalisation, the amount of bank credit to the private sector and the amount outstanding of domestic debt securities issued by the private sector as a share of GDP.

According to this indicator, the relative size of financial markets has increased since the 1990s for all countries except Belgium and Japan. Austria, Greece and Italy have the smallest markets, while the financial centres of Luxembourg, Switzerland and the United Kingdom have the largest ones. The Netherlands, Greece and to some extent Spain have seen the size of their markets more than double over the last fourteen years. Overall, the average size of financial markets in the euro area is smaller than in the United Kingdom and the United States.

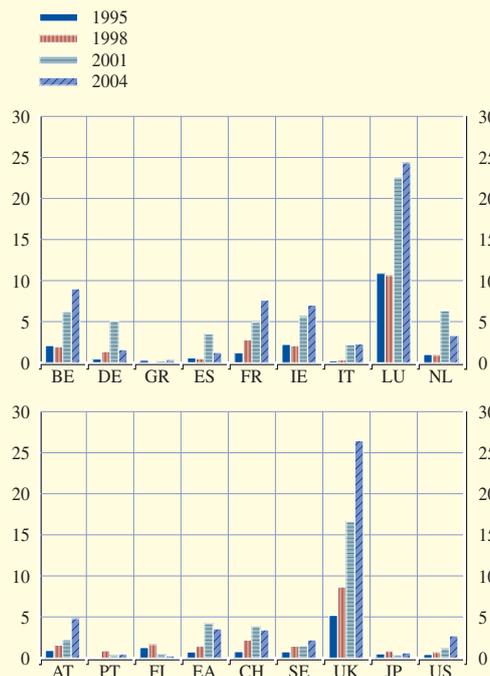
The next sub-sections go beyond the traditional size measures of financial markets and consider indicators that relate more directly to the different functions of a financial system. These help paint a more nuanced picture of a financial system's performance.

3.2 FINANCIAL INNOVATION AND MARKET COMPLETENESS

Financial innovation opens up new possibilities for economic agents to allocate capital across space, time and risk. This makes markets more complete. For example, new financial instruments allow firms to manage risks by shifting them to economic agents better able to bear them. Financial innovation allows households to refinance their mortgages and banks to resell risks using mortgage-backed securities. Furthermore, prices of new financial instruments contain additional information. Thus, financial innovation facilitates the supply of capital and reduces information asymmetries.

Chart 2 Turnover of interest rate derivatives

(percentages of GDP)



Sources: BIS, IMF and ECB calculations.
Note: Daily average turnover in the month of April of OTC single currency interest rate derivatives (net of local inter-dealer double-counting).

Chart 2 shows the turnover of interest rate derivatives. More active trading of interest rate derivatives allocates capital across time, space and risk because investors can lock in future interest rates using forwards and futures, hedge using options and exchange fixed and flexible interest rate agreements using swaps.

The most active markets for interest rate derivatives are the financial centres of Luxembourg and the United Kingdom. The market is much less active in most other countries, although Austria, Belgium, France and Ireland have seen strong growth over the last decade. The market has recently shrunk

⁸ See R. Levine (2002), "Bank-based or market-based financial systems: Which is better?", *Journal of Financial Intermediation*, 11, pp. 398-428.

in Germany, Spain and the Netherlands.⁹ On average, interest rate derivatives are more actively traded in the euro area than in the United States.

3.3 TRANSPARENCY AND INFORMATION

Transparency and information refer to measures that capture the degree to which a financial system produces and spreads information about investment opportunities, market conditions and the behaviour of economic agents. For example, the quality of accounting standards captures the degree of asymmetric information between investors and managers. Better information on and more transparent reporting of company performance alleviate the control problem between outside investors and firm insiders, e.g. through more accurate stock prices, allowing outsiders to exert pressure by selling their shares, or through an improved market for corporate control.

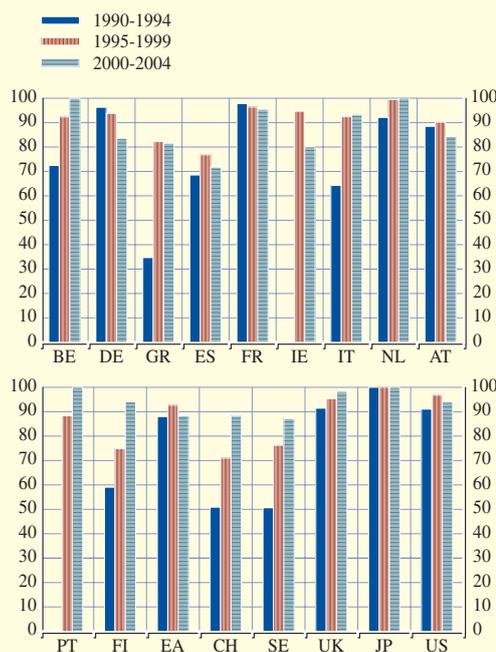
A measure that has been used previously in the finance and growth literature comes from the mandatory disclosure of firms' accounting information.¹⁰ However, a potential shortcoming of measures of mandatory disclosure is that they neither measure how much information is (voluntarily) disclosed, nor do they capture whether information is used in capital markets.

To address some of these issues, a number of other measures of how a financial system deals with information frictions are presented here. Analysts, for example, study companies and make earnings forecasts to inform investors. They represent an important outside assessment of a company's condition. The more companies are covered by analysts, the more information about them is available in a financial system. Chart 3 presents the extent of analyst coverage over time.

In most countries, analyst coverage is either high or has increased significantly since 1990, except in Germany where the extent of coverage has shrunk. Spanish, Greek and Irish

Chart 3 Analyst coverage

(percentages of total stock market capitalisation)



Sources: Thomson Financial's First Call database, IMF and ECB calculations.

Notes: Stock market capitalisation of firms covered by at least one forecast of earnings per share for the current fiscal year. Data for Luxembourg are not available, while for the Netherlands and Portugal the data end in 2001. Data for the euro area are computed as an average of euro area countries' values weighted by the stock market capitalisation of each country.

companies are the least covered companies in the euro area.

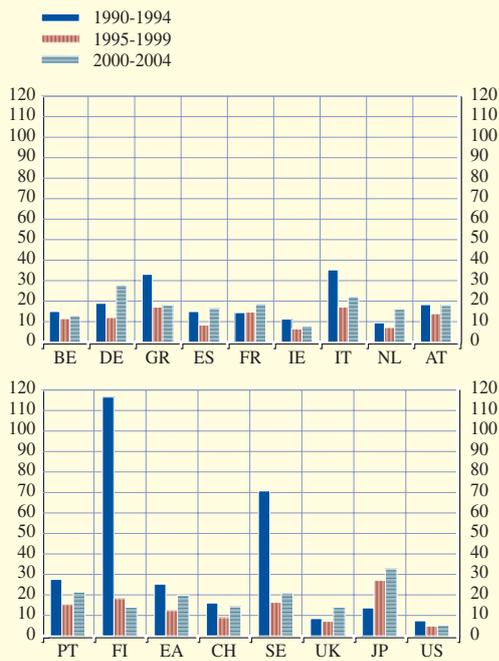
Related to the extent of analyst coverage is the dispersion of analysts' forecasts. If a firm discloses relevant and credible information, or if this information is readily available in a market, then analysts' earnings forecasts

⁹ A caveat is that the location of trading says little about the location of counterparties, e.g. an investor in country A may enter into a swap agreement with an investor in country B, while the swap itself is traded in country C. This also illustrates that one country can benefit from the existence of standardised financial instruments and the performance of the financial system of another country, as long as there is enough financial integration.

¹⁰ See for example R. Rajan and L. Zingales (1998), "Financial dependence and growth", *American Economic Review*, 88, pp. 559-86.

Chart 4 Dispersion of analysts' forecasts

(percentages of forecasted earnings per share)



Sources: Thomson Financial's First Call database and ECB calculations.
 Notes: Standard deviation of the earnings per share (EPS) forecasts for a given year divided by the weighted average of the EPS forecasts. Data for Luxembourg are not available, while for the Netherlands and Portugal the data end in 2001. Euro area figures are averages of euro area countries' values weighted by the stock market capitalisation covered by analysts.

only with more analyst coverage, but also with a lower dispersion of analysts' forecasts.

Chart 4 presents the dispersion of analysts' forecasts. It shows that analysts disagree most in Germany, Italy, Sweden and Japan in the period 2000-2004. While the extent of coverage in the euro area is comparable to that in the United States, the dispersion of earnings forecasts is more than twice as high.

The dissemination of information by stock markets is an important function of a financial system. In order to determine how well a stock market incorporates useful information into stock prices and how efficient it therefore is in guiding capital to the best investment opportunities, the box below presents a decomposition of stock price volatility into market volatility and firm-specific volatility. If firms' stock prices are mainly driven by market factors, i.e. if there is a high synchronicity among stocks, then this indicates that the stock market does not efficiently transmit firm-specific information. In that case, the explanatory power (measured by the R² statistic) of a regression of a firm's stock price on market factors should be high, i.e. most of firms' stock price variations are explained without firm-specific information.¹¹

should converge. A financial system that aggregates and spreads information more efficiently may therefore be associated not

¹¹ See A. Durnev, R. Morck and B. Yeung (2003), "Value enhancing capital budgeting and firm-specific stock returns variation", *Journal of Finance*, 59, pp. 65-106.

Box

IDIOSYNCRATIC FIRM INFORMATION IN THE STOCK MARKET – THE R² INDICATOR

To measure the information content of stock prices using the R² statistic, i.e. the variation of the dependent variable in a regression that is explained by the independent variables, the following model is considered:

$$r_{ijt} = \alpha + \beta_1 MK_{jt} + \beta_2 EMU_t + \beta_3 US_t + \beta_4 EME_t + \varepsilon$$

where:

- r_{ijt} is the return on stock i in country j at time t
- MK_{jt} is the return on the stock market index in country j at time t

EMU_t is the return on the euro area stock market index at time t

US_t is the return on the US stock market index at time t

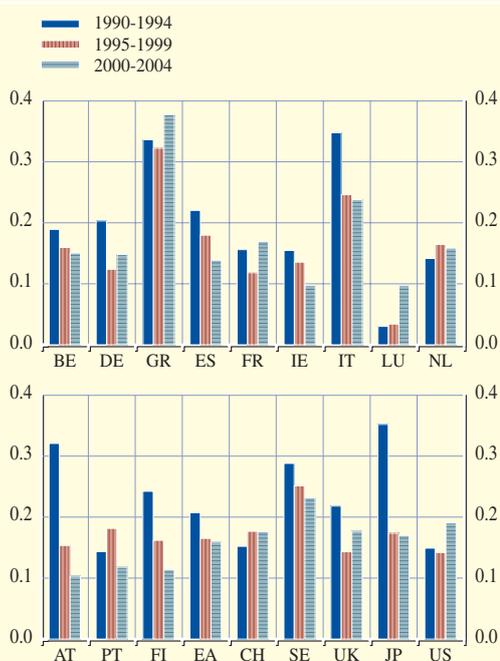
EME_t is the return on an emerging markets index at time t

In this specification, stock prices are driven by two sets of explanatory variables. First, there are the market factors (MK, EMU, US, EME) that are common to all stocks in a market. They capture market-wide information, i.e. the systematic information that enters into prices. Second, there is the error term ϵ that captures the non-systematic or idiosyncratic element that drives stock prices. It is assumed to pick up firm-specific news or events since they would not affect the systematic factors. After computing the R^2 statistic for a set of stocks in a given country, the average R^2 is computed for the country. This is a measure of the information content of prices in a given market.

If the information disclosed by firms is relevant and credible, and if the stock market is efficient in aggregating and spreading information, e.g. a great deal of informed trading takes place, then the regression should not perform well in the sense that the R^2 of the regression should be low. A low R^2 therefore indicates that the stock market is able to convey information about valuable investment opportunities of firms (or the lack thereof). Conversely, if the R^2 is high, the explanatory power of systematic factors is high. In this case, stock prices move for reasons other than firm-specific information, meaning that the stock market does not convey useful information about individual firms' investment opportunities.

The results reported in the chart are based on a sample of 4,051 companies listed in 17 countries from 1990 to 2004. The chart presents the R^2 statistics for different periods of time across different countries.¹ Greece, Italy and Sweden have the highest R^2 , i.e. in these countries stock markets incorporate the least amount of firm-specific information. The stock markets of Austria, Finland, Ireland and to some extent Portugal have in the last few years increasingly incorporated firm-specific information into prices. According to the R^2 statistic, the euro area has since 2000 incorporated on average more firm-specific information into stock prices than the United Kingdom or the United States.

Information content of stock markets – the R^2 statistic



Sources: Datastream database and ECB calculations.
Notes: Country average R^2 statistics. Euro area figures are simple averages of euro area countries' R^2 statistics.

¹ The average country R^2 statistics from 2000 to 2004 are uncorrelated with average (i) industry composition and sectoral concentration of firms, (ii) stock market volatility and (iii) GDP growth over the same period.

3.4 CORPORATE GOVERNANCE

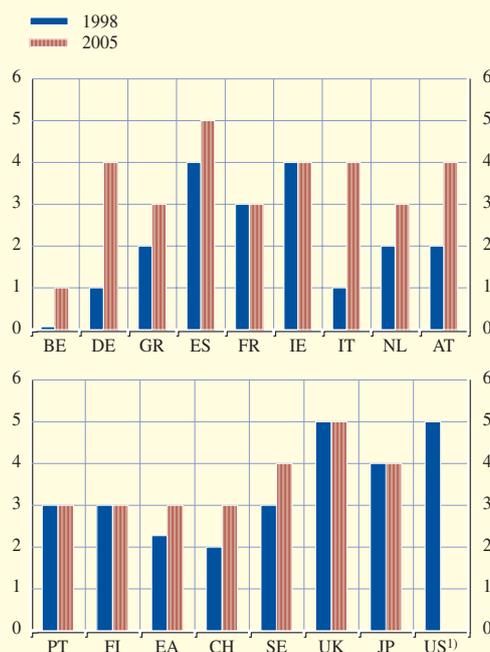
Corporate governance addresses the potential conflict between investors and managers, and among investors, e.g. large versus small shareholders. Better governance ensures that their interests are more aligned, that investors obtain a better return and that there will be a smaller loss of efficiency due to opportunistic behaviour by managers. One example of good governance is strong shareholder protection, e.g. if investors are allowed to vote in shareholder meetings even without being physically present, they can more easily dismiss management. By threatening management with dismissal, shareholders will be more likely to receive promised repayments, which in turn lowers the rate of return they demand on their investments. Alternative measures of corporate governance are the protection of creditors, e.g. how well does the law protect their claims in the case of bankruptcy, the presence of outsiders on executive boards or the independence of nomination and salary committees.¹²

Chart 5 presents a measure of how well the law protects shareholders with respect to voting at shareholder meetings. Shareholder rights are strong in Austria, Ireland, Spain, Switzerland, Sweden, the United Kingdom and the United States. Most euro area countries have strengthened these rights over the last seven years, but the level of shareholder protection in the euro area is still below that in the United States or the United Kingdom.

3.5 LEGAL SYSTEM

In the perfect market benchmark, there are no frictions because contracts covering all possible future contingencies can be written and, equally importantly, can be enforced. When a financial system allocates capital across time and space, contracts are needed to connect providers and users of capital. A financial investor relinquishes control of his funds now in return for a promised claim to future cash flows. In order for the promise not to be an empty one,

Chart 5 Shareholder rights



Sources: R. La Porta, F. López-de-Silanes, A. Shleifer and R. Vishny (1998), "Law and Finance", *Journal of Political Economy*, and OECD Corporate Governance and Company Law Database.²⁾

Notes: The index ranges from 0 to 6; the lower the score, the weaker the shareholder rights. The index is computed as the sum of the following variables: (1) proxy by mail allowed; (2) shares not blocked before meeting; (3) cumulative voting or proportional representation; (4) oppressed minorities mechanism; (5) pre-emptive rights; and (6) percentage of share capital to call an extraordinary shareholder meeting. Variables (1) to (5) equal 1 if allowed and 0 otherwise, while (6) equals 1 when the minimum required percentage is less than 20%, and 0 otherwise. Euro area figures are averages of euro area countries' scores.

1) The 2005 update for the United States is not available yet.

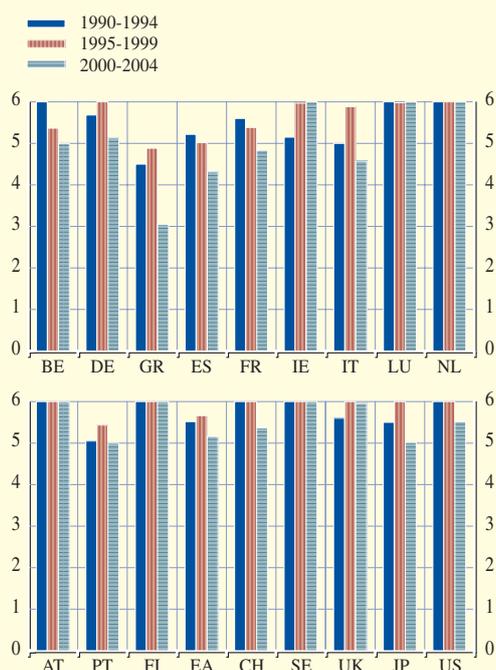
2) The underlying data were originally published by the OECD. However, this reproduction does not necessarily reflect the official views of the Organisation or of the governments of its member countries.

contracts are written and a well-functioning financial system must have an implicit or explicit mechanism to enforce them. The legal system, among other things, explicitly enforces financial contracts and thus contributes to the performance of financial systems.

It is extremely difficult to assess the many facets of a legal system in relation to the

¹² R. La Porta, F. López-de-Silanes, A. Shleifer and R. Vishny (2000), "Investor protection and corporate governance", *Journal of Financial Economics*, vol. 58, pp. 3-27.

Chart 6 Law and Order index



Source: International Country Risk Guide.

Notes: The index ranges from 0 to 6, with lower scores indicating weaker law and order. The law sub-component is an assessment of the strength and impartiality of the legal system, while the order sub-component is an assessment of popular observance of the law. Euro area figures are averages of euro area countries' scores.

financial system and many different measures of legal effectiveness are conceivable. Chart 6 presents one possible measure that is limited to the enforcement of law: the “Law and Order” index, which has been widely used in the law and finance literature (and elsewhere).¹³ The index intends to capture the strength and impartiality of a legal system by considering issues such as the observance of the law, its strength and impartiality.¹⁴

Due to the limited scope of the index, its results must be interpreted very carefully. It does not for example consider a legal system's procedures and arrangements or its ability to foresee conflicts. According to the Law and Order index, all the countries considered here score highly. On average, the level of the Law

and Order index for the euro area is comparable to that for the United States or Japan.¹⁵

Chart 7 reports an indicator that measures another aspect of the efficiency of a legal system in reducing frictions impeding the flow of capital. It measures how many days it takes on average in a country to recoup a bounced cheque through the courts. A speedy resolution of financial conflict in courts reduces administrative costs and improves the functioning of a financial system.¹⁶

While the courts in most euro area countries allow a quick recovery of bounced cheques, it takes considerably longer to do so in Austria, Portugal and Italy.¹⁷ It takes the least amount of time to resolve this particular type of financial conflict in the Netherlands and in Japan. The average time for the recovery of bounced cheques in the euro area is comparable to that in the United Kingdom and the United States.

13 The Law and Order index is part of the International Country Risk Guide (ICRG) published by the Project Risk Services group. The index has been used by R. La Porta, F. López-de-Silanes, A. Shleifer and R. Vishny (1998) in “Law and Finance”, *Journal of Political Economy*, 106, pp. 1113-1155. It is examined in the context of asset pricing by C. Erv, C. Harvey and T. Viskanta (1996) in “Political risk, economic risk and financial risk”, *Financial Analysts Journal*, 52, pp. 29-46. It is also used by the United Nations in its “Human Development Report”.

14 The index is the outcome of a subjective analysis by staff of Project Risk Services, a private sector company, based on questions such as: Are judges/magistrates appointed by qualification or by political affiliation/interest? How well paid are police and law enforcement officers relative to other professionals? Have higher courts ruled against government or against highly placed politicians or members of social/business elites?

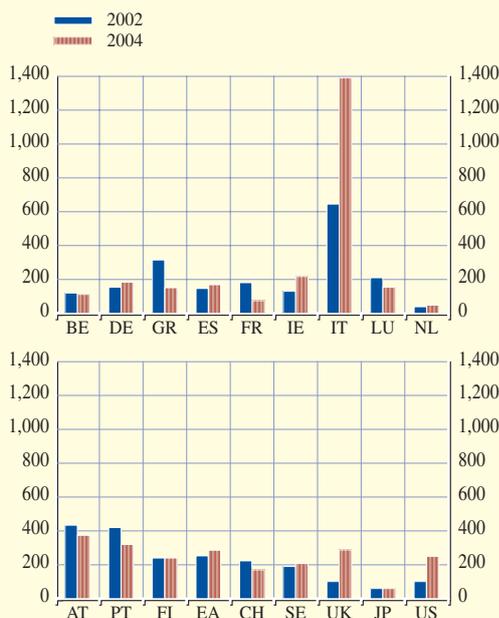
15 Although Greece obtains a somewhat lower score for the period 2000-04, its score jumped back up to 4.5 at the end of 2004.

16 S. Djankov, R. La Porta, F. López-de-Silanes and A. Shleifer (2003), “Courts: The Lex Mundi project”, *Quarterly Journal of Economics*, 118, pp. 453-517.

17 The 2004 data are not exactly comparable with the 2002 data (see the notes of Chart 7 for more details).

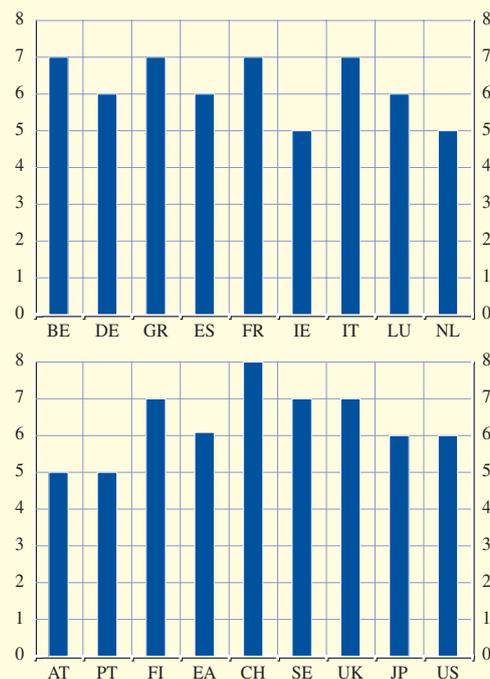
Chart 7 Duration of enforcement

(number of calendar days)



Sources: S. Djankov, R. La Porta, F. López-de-Silanes, A. Shleifer and R. Vishny (2003), "Courts: The Lex Mundi project", *Quarterly Journal of Economics*, and World Bank.
Notes: Total number of calendar days needed to recoup a bounced cheque, i.e. between the moment of issuance of judgement and the moment the creditor obtains payment of a cheque. This is the sum of: (1) duration until completion of service of process; (2) duration of trial; and (3) duration of enforcement. Euro area figures are the average number of calendar days across euro area countries. 2004 data are not exactly comparable with 2002 data. The 2002 (2004) survey refers to a cheque worth the equivalent in local currency of 5% (200%) of GNP per capita of the respondent country. The 2004 survey also considers administrative procedures for the collection of overdue debt.

Chart 8 Bank regulations supporting market discipline



Source: 2004 World Bank survey conducted with national supervisory authorities.
Notes: The index ranges from 0 to 8, with higher scores indicating easier private monitoring. Data relate to the status in 2003. The index combines information on the following categories: (1) external certified auditor required (yes=1, no=0); (2) explicit deposit insurance scheme (yes=1, no=0); (3) comprehensiveness of bank accounting (sum of the values (yes=1, no=0) assigned to: (a) income statement containing accrued but unpaid interest/principal while loan is non-performing; (b) consolidated accounts covering bank and any non-bank financial subsidiaries required; and (c) directors legally liable for erroneous/misleading information); (4) off-balance-sheet items disclosed to public (yes=1, no=0); (5) banks disclose risk management procedures to the public (yes=1, no=0); and (6) subordinated debt allowable (required as part of capital (yes=1, no=0)). Euro area figures are averages of euro area countries' scores.

3.6 REGULATION, SUPERVISION AND FINANCIAL STABILITY

It is widely recognised that the financial sector is "special" compared with many other sectors of the economy. First, it faces a greater risk of instability, both at the level of individual financial intermediaries and markets and at the level of the overall financial system. In particular, systemic financial crises can have large adverse effects on growth. Second, many households using retail financial services may lack financial knowledge and the ability to

collect information about the nature and risks of various financial contracts and about the viability of financial intermediaries to whom they entrust their savings. For these reasons, financial sectors tend to be subjected to more regulation and supervision than most other sectors. This regulation and supervision aims to stabilise financial intermediaries and financial systems as well as to protect consumers. In pursuing financial stability and consumer protection, efficiency can however sometimes suffer, for example when regulations inadvertently deter efforts

to innovate, lead to adverse risk-shifting incentives or impose excessive administrative costs on financial intermediaries. This is one reason why recent regulatory efforts place increasing importance on accurately assessing risks and on the role of market discipline.¹⁸

Chart 8 therefore presents a measure that relies on potential complementarities between regulation and private market monitoring. It aggregates formal regulations that ease the private monitoring of banks, in particular by wholesale investors, e.g. accounting and audit requirements. Stronger incentives for private monitoring in turn have been shown to lower net interest margins and to reduce the proportion of non-performing loans.¹⁹

According to the index, there is a relatively broad scope for market discipline in all the countries covered. Switzerland has a regulatory environment that is most conducive to private monitoring. On average, the extent of these regulations in the euro area is comparable to the United States and Japan, while it is slightly smaller than in the United Kingdom and Sweden.

3.7 COMPETITION, OPENNESS AND FINANCIAL INTEGRATION

More competition among suppliers of capital in a financial system reduces frictions. It eliminates inefficient suppliers, frees up resources that are captured through market power and ensures value maximisation as a means of survival. Less restrictions, openness and integration in turn support competition by easing the exchange of goods and services and allowing easier entry of competitors.²⁰

However, with respect to banking, the overall effect of competition on growth is theoretically ambiguous. More competition could force banks to lower lending rates and increase the provision of credit. But it could also reduce incentives to acquire information about borrowers and to monitor them, leading to

poorer loan quality and a higher cost of capital.²¹ Similarly, restrictions on bank activities could, on the one hand, make banks more transparent, and thus easier to monitor, and limit their degree of market power. On the other hand, restrictions could prevent banks from exploiting economies of scale and limit their franchise value, thereby reducing their incentives for sound and prudent behaviour.

Chart 9 shows whether banks are allowed to undertake fee-based activities, e.g. the underwriting and selling of securities and insurance, in addition to deposit-taking and lending.²²

Most European banks, except French and Irish banks, were previously unrestricted in their activities, but are now not allowed to undertake the full range of activities.²³ In Luxembourg and Finland, banks remain unrestricted in their activities. In contrast, US and Japanese banks were strongly regulated, but recently saw a loosening of the restrictions across both securities and insurance businesses.

18 See, for example, the provisions in pillar 3 of the new framework of the Basel Committee on Banking Supervision ("Basel II: International Convergence of Capital Measurement and Capital Standards: A Revised Framework", June 2004).

19 See J. Barth, G. Caprio and R. Levine (2004), "Bank regulation and supervision: What works best?", *Journal of Financial Intermediation*, 13, pp. 205-248.

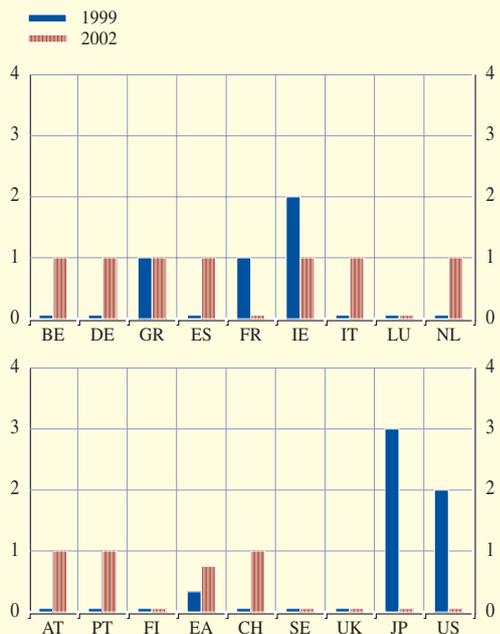
20 See, for instance, London Economics (2002), "Quantification of the macroeconomic impact of integration of EU financial markets", a study commissioned by the European Commission on the economic benefits of financial integration, which is available on the Commission's website. Moreover, M. Giannetti, L. Guiso, T. Jappelli, M. Padula and M. Pagano (2002), "Financial markets, corporate financing and growth", DG ECFIN Economic Paper No 179, argue that integration and openness support domestic financial development through external competitive pressures.

21 In practice, however, the benefits of banking competition appear to outweigh its costs. See S. Claessens and L. Laeven (2005), "Financial sector competition, financial dependence and growth", *Journal of the European Economic Association*, 3, pp. 179-207.

22 The measure has been used for example by J. Barth, G. Caprio and R. Levine (2004), *op. cit.*

23 Restrictions have been tightened in particular for banks' insurance business.

Chart 9 Bank activity restrictions



Sources: 2001 and 2003 editions of the World Bank's Bank Regulation and Supervision Database and ECB calculations.
 Notes: The index ranges from 0 to 4, with a lower score indicating fewer restrictions. It is the sum of the scores in two categories, insurance and securities. The range in each category is as follows: 0 = unrestricted, the full range of activities can be conducted or but some or all must be conducted in subsidiaries; 1 = restricted, less than the full range of activities can be conducted in the bank or subsidiaries; 2 = prohibited, the activity cannot be conducted in either the bank or subsidiaries. Euro area figures are averages of euro area countries' scores.

3.8 ECONOMIC FREEDOM, AND POLITICAL AND SOCIO-ECONOMIC FACTORS

The functions of a financial system centre on the provision of information, the enforcement of contracts and the facilitation of transactions. These functions are affected by political and socio-economic factors in addition to the more tangible forces presented so far. This last subsection therefore briefly mentions some issues that are harder to measure but nevertheless are important for a broad discussion of the performance of financial systems.

Not only the legal system but also the general institutional environment partly determines the functioning of a financial

system.²⁴ Governance structures that mitigate the control problem between financial investors and managers are, for example, embedded in traditions, social norms, religion and politics. A manager's sense of duty towards outside investors will ease the conflict of interest between him and his investors even when there are few formal governance arrangements. The idea is that explicit contracts can neither anticipate nor include all possible contingencies, nor can they be perfectly enforced under all circumstances. All economic exchange depends to some extent on trust and fairness, and on what is perceived as "fair", which are all shaped by socio-economic and ethical factors. It has been shown that social capital, measured either using surveys on how people trust each other or using a metric of civic engagement such as voter turnout at local elections, matters in a financial system, e.g. it can affect access to credit.²⁵ Similarly, politics shape the laws governing creditor and shareholder protection and partly determine the protection of private property rights vis-à-vis the rights of the State. Economic freedom captures the notion that fewer administrative burdens on economic activity, e.g. less red tape, mean less frictions in the flow of capital.

4 CONCLUSION

This article presents a framework for assessing the performance of financial systems. The approach taken is a functional one, i.e. a financial system is viewed as performing a number of functions to overcome market imperfections. The article shows how the functional framework translates into a number of groups of financial system characteristics that can be used to structure the assessment of performance. The quality of the financial system's performance of its functions can then

24 O. Williamson (2000), "The New Institutional Economics: Taking Stock, Looking Ahead", *American Economic Review*, vol. 38, pp. 595-613.
 25 See for example L. Guiso, P. Sapienza and L. Zingales (2004), "The role of social capital in financial development", *American Economic Review*, 94, pp. 526-56.

be evaluated with a set of economic indicators under each group. The framework and the choice of indicators are particularly geared towards an assessment of industrialised countries with relatively developed financial systems.

To illustrate the approach, the article applies a selection of these indicators to euro area countries, to the euro area aggregate and to a reference group of non-euro area countries. Some are updates of indicators used previously in the finance and growth literature and others are new. A number of preliminary conclusions emerge from them. First, there is in general a fair amount of heterogeneity in financial system performance across euro area countries. Second, performance, as measured by the indicators displayed, can vary a lot across functions and dimensions. Some systems that score highly in one dimension may not necessarily do so in another. Looking at the whole sample of countries, it is noteworthy that the financial system in the United Kingdom, and to a lesser extent that in the United States, stand out somewhat in that they perform well across most of the indicators presented here.

Although a number of caveats need to be kept in mind, the differences in financial system performance identified in this article seem to suggest that there is further scope for structural reforms of financial sectors in the euro area. The efficiency gains that can be expected from such reforms would also benefit the ECB as they would support the smooth implementation and transmission of monetary policy through euro area financial markets.