



EUROPEAN CENTRAL BANK



## **EU BANKS' INCOME STRUCTURE**

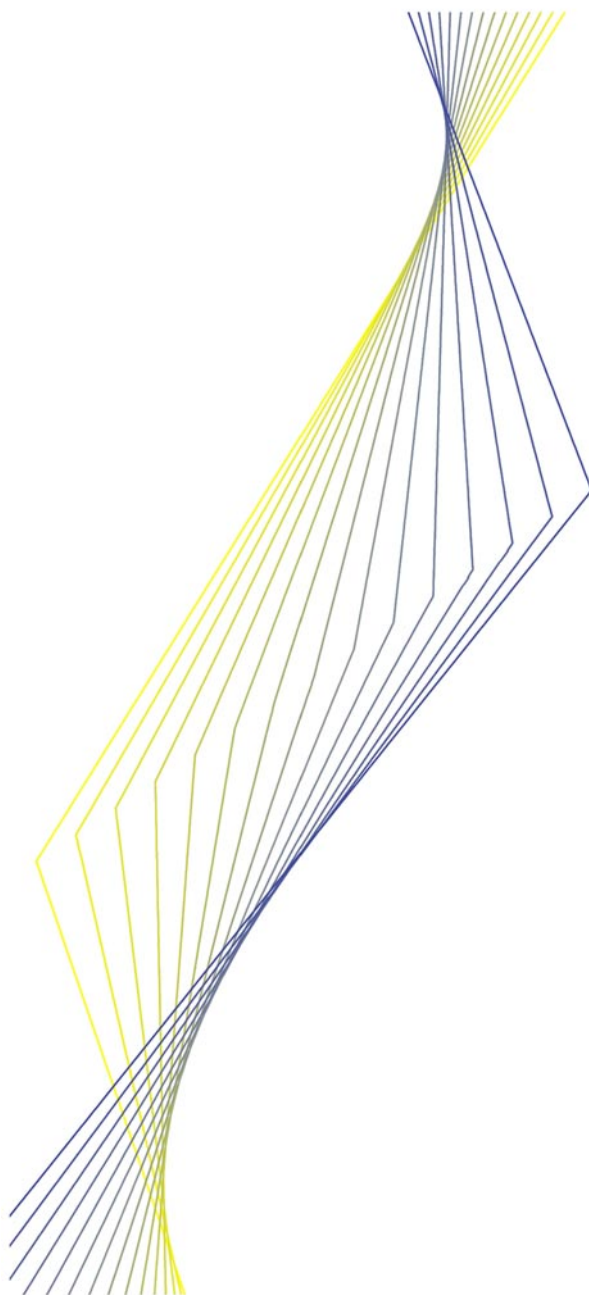
**APRIL 2000**







EUROPEAN CENTRAL BANK



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## Executive summary

This report, prepared by the Banking Supervision Committee (BSC), examines the impact of past and current developments in banking business on the income structure of EU banks. In particular, it focuses on the analysis of the increased incidence and main features of non-interest income. It also touches upon the implications of these developments for the risk profile of banks and for prudential supervision.

The EU banking systems are facing major changes in the form of increased competition, concentration and restructuring. These changes are triggered by a number of factors including technological change, financial liberalisation and internationalisation. Economic and Monetary Union (EMU) is expected to reinforce these trends. In this context, the phenomenon of banking disintermediation has been in evidence. The EU banking systems have been losing their relative share of financial intermediation to institutional investors (investment funds, insurance companies and pension funds). It is in the collection of savings, with the growing importance of institutional investors that this process has been the most pronounced. The assets side of banks' balance sheets has remained comparatively less affected.

Although the trend towards disintermediation is expected to continue in the future as institutional investors will, probably, continue to grow, mainly on account of demographic and social changes, besides legal and fiscal reasons, a Darwinian-type pattern of evolution leading to a progressive reduction of the banking sector is not anticipated. This is mainly due to the fact that banks have reacted to the new environment by adopting a proactive strategy. On the liabilities side, in several EU countries most of the institutional investors are included in banking groups and operate with the same corporate strategy. In this context, banking groups can offer to their clients traditional deposits, investment funds and pension funds as alternatives, depending on the specific market, legal or fiscal situations. Therefore, the income structure could be modified within the banking group without changes in its overall market position. On the assets side, they complement their natural advantage in the financing of households and small and medium-sized enterprises (SMEs), by offering services such as backup lines, underwriting facilities and treasury management to large corporations or by developing trading activities and securitisation operations. The effects of these responses are mainly reflected in changes in the structure of bank income and, in particular, in the increasing incidence of non-interest income. It is also reflected in the increasing size of off-balance-sheet items in the banks' financial accounts.

In order to assess the relevant developments in the structure of bank income, a specific survey has been conducted across the EU countries. The available data referring to the period 1989-98 should be considered with due caution for two reasons. First, the data on past years' trends (1989-95) and those referring to more recent years (1995-98) are not directly comparable as they stem from different sources (OECD in the first case and central banks/supervisory authorities in the second). The use of two data sets stems from the fact that data provided by the national authorities were not sufficient enough to capture past years' trends in income structure and volatility of income sources. Second, different approaches may exist across the different countries to accounting procedures and supervisory reporting schemes limiting the effectiveness of cross-country comparisons. Moreover, it should be noted that the reference period (1993-1998), for which a more detailed description of the components of non-interest income is available, has been characterised by specific market conditions (decrease of interest rates and a generally favourable financial climate for high level profits on financial operations).

The main findings of the survey on non-interest income can be summarised as follows. **First, the composition of non-interest income is rather heterogeneous.** Fees and commissions are the

main component and in 1998 represented, on average, around 54 % of total non-interest income for EU banks (50 % for the euro area) with national figures ranging from 72 % to 35 %. However, a declining trend was observed in the relative importance of fees and commissions as a source of non-interest income for the EU banks in recent years (1994-1998).

Fees and commissions can in turn be divided into various sub-components, such as net commissions on payment transactions, on securities transactions, for guarantees, for safe custody and for foreign exchange transactions. The three other main components of non-interest income are: (i) net profit on financial operations (accounting for nearly 19 % of non-interest income in the EU in 1998); (ii) income from -variable yield- securities (nearly 17 %) showed a steadily increasing trend in terms of its relative importance as a source of non-interest income over the last years of the observation period (1995-1998); and (iii) other operating income (around 10 %). These averages, however, conceal important differences between countries.

**Second, non-interest income has been the most dynamic component in the bank income structure in recent years.** The relative importance of non-interest income (as a percentage of total operating income) increased in the EU throughout the observation period. With regard to the more recent years, there has been a noteworthy increase from 32 % in 1995 to 41 % in 1998. The increase in its relative importance could, however, signal either the intrinsic dynamism of non-interest income or an ongoing reduction in interest income. In fact, both patterns are at work. Net interest income as a percentage of total assets (the interest margin) continuously declined, as an EU average, over the 1989-98 period. This decline is particularly evident in the period 1995-98 in which the ratio decreased from 1.96 % to 1.63 % in 1998. By contrast, during the same period (1989-98), an increasing trend can be observed for the non-interest income to assets ratio (from 0.94 % to 1.15 % in the period 1995-98). As a result of these patterns, the operating income of EU banks as a percentage of total assets decreased from 2.90 % in 1995 to 2.79 % in 1998.

**Third, the increase in non-interest income seems to have had a positive effect on banks' profitability in recent years.** It should be mentioned, however, that the extension of the positive impact of the non-interest income on profitability has been contained by the increased costs associated with the development of non-interest income activities. Improved profitability has also been the result of other factors such as better cost control and more efficient use of banks' capital. Moreover, the positive impact on banks' profitability has been supported by the favourable conditions prevailing in the stock markets in recent years, which may not be permanent. Generally speaking, the relationship between profitability and activities generating non-interest income is not straightforward as the latter may entail significant costs for banks. The growth of non-interest income could, in fact, fail to lead to higher profits if a relatively large part of the "additional" non-interest income is absorbed by increased costs. Growth on the cost side of fees payable could result from growth on the revenue side (e.g. if the development of asset management fees coincides with increased fees paid to financial advisors). Moreover, the development of some fee generating activities could entail higher personnel or administrative costs. Increased costs could be one possible reason why banks which are more specialised in non-interest activities do not seem to be necessarily more profitable than others which are less specialised. This cost dimension probably supports the general view that size is an advantage when developing non-interest activities. Large banks, international groups and financial conglomerates seem to be at a competitive advantage in developing many non-interest income generating activities, as the large scale of operations would appear to offer increased opportunities for more rapidly achieving a critical mass through economies of scale and scope. Moreover, large institutions are probably more able to attract and retain the highly qualified personnel needed to develop new and more sophisticated products.

**Fourth, in several EU countries an inverse correlation between interest and non-interest income seems to exist**, although to a varying degree. This would indicate that fluctuation in one source of income could, to a certain extent, offset fluctuation in the other. However, the results should be interpreted with caution, mainly due to the fact that the composition of non-interest income has not remained stable during the period under observation. Moreover, the composition of non-interest income could be influenced by pricing policy or commercial factors. In this respect, in pricing their services, banks are increasingly switching from an interest margin to a system of fees. Many banks are also offering credit on very strict conditions, thus reducing their interest margin in the hope of developing a regular flow of non-interest income.

**Finally, non-interest income as a whole does not seem to be less volatile than interest income.** Empirical evidence showed a rather mixed picture with regard to the volatility of non-interest income vis-à-vis interest income, since net interest income was found to be more volatile in eight EU countries, whereas non-interest income was a more volatile source for seven EU countries. However, net interest income after the deduction of provisioning becomes a more volatile source of income for most of the EU countries. This could be a sign that banks moving into non-interest income activities do not necessarily move into areas of greater volatility. The aggregate result of non-interest income volatility is, however, the outcome of two different patterns. On the one hand, profits on financial operations and, to a lesser extent, income from (variable yield) securities present high volatility, on the other hand, fees and commissions are significantly less volatile sources of non-interest income. However, the various categories of fees and commissions are themselves quite heterogeneous in terms of their volatility. Fees and commissions charged for services relating to typical banking activities (e.g. payment transactions, safe custody and account administration, correspondent banking) are, in general, less volatile than fees and commissions charged on activities which are affected by economic and cyclical developments (e.g. underwriting activities, brokerage services, treasury management, transactions on derivatives, private banking, credit card business). Moreover, the part of non-interest income stemming from the institutional investors belonging to the same banking group could be quite stable and, to the extent that within the group the financial products offered by these institutional investors replace traditional deposits, can be regarded as rather similar to interest income.

The increased incidence of activities generating non-interest income has, in the first instance, implications for the risk profile of banks. The main aspect is that the importance of some categories of risks, including operational, reputation and strategic risks, has increased. However, to the extent that the development of non-interest income is accompanied by a relative reduction in the classical intermediation activity of banks, it could lead to some reduction of credit risks. These factors are likely to contribute more to changing the mix of risks than to reducing their total amount. In any case, this development is expected to make the management of banking activity more complex. In the second instance, the changes in banks' activity and income structure also have implications for prudential supervision. First, the developments in question seem to support the intention – in the context of the current review of the capital adequacy regime for credit risk being undertaken in the main international supervisory forums – to lay down specific capital requirements for risks other than credit and market risks. Second, they make the monitoring activity of banking supervisors more complex.



## Introduction

The present report has been prepared by the Banking Supervision Committee (BSC) in the context of the tasks of the Eurosystem to contribute to the smooth conduct of policies pursued by the competent authorities relating to prudential supervision of credit institutions and the stability of the financial system (Article 105 (5) of the Treaty establishing the European Community). Last year the BSC prepared two other reports, namely the one on the "Possible effects of EMU on the EU banking systems in the medium to long term" and that on "The effects of technology on the EU banking systems" published in February and July 1999 respectively.

This report concentrates on the changes in banks' income structure, notably the substitution of non-interest income for interest income resulting from the changing nature of the financial environment. To this end, an empirical and qualitative analysis of the income structure and the components of the non-interest income has been carried out. In addition, the potential changes in the inherent level of risk in banking and financial services groups as a result of changes in the banks' income structure is also discussed.

The report is structured as follows: **Section 1** touches upon the main elements characterising the changing nature of banking and financial services and focuses on those factors which have a direct impact on the structure and degree of risk of banks' income. Furthermore, banks' responses to the changing nature of financial systems are briefly considered. **Section 2** contains an empirical investigation and a qualitative analysis of the different components of the non-interest income of the EU banking system covering the period from 1993 to 1998. Data collected by national authorities are used in this section because they provide more detailed analysis of the non-interest income sub-components vis-à-vis other sources (e.g. the OECD) and also cover a more recent time period (i.e. 1998 data). **Section 3** analyses in greater detail the main features of non-interest income. More specifically, it examines the extent of the substitution of non-interest for interest income, the effects of non-interest income on banks' profitability and the sensitivity of non-interest income to the size of banks. It also looks at the possible correlation between interest and non-interest income and examines the degree of volatility of the various non-interest income components. The empirical investigation of structural developments over past years (1989-95) is based on the OECD database as it provides a calculation of averages for the EU and euro area banking systems, whereas more recent developments (in the period 1995-98) are analysed mainly on the basis of data provided by national authorities (national central banks and supervisory authorities). **Section 4** addresses the implications of changes in the nature of banking and in sources of banks' income in terms of banking risks and some related supervisory issues.

## I Structural changes in EU financial systems

### I.1 Developments in the financial systems

Among the many structural developments which have affected the banking sector, disintermediation assumes particular importance. Disintermediation has been favoured by the introduction of new technologies, financial liberalisation and European Economic and Monetary Union (EMU), which allow new market participants to perform tasks previously largely reserved for banks. The disintermediation process has been more intense with regard to the diversification of savings, financial intermediaries other than banks (investment funds, insurance companies and pension funds) having grown considerably in relative importance in all EU countries. As far as the latest developments are concerned (see Table I), there has been a continuous increase in the relative importance of other financial intermediaries and especially of investment funds as opposed

to credit institutions. A key aspect of the growing importance of financial intermediaries other than banks is the price effect induced by a booming stock market. However, credit institutions are still predominant in the EU financial systems, as their assets exceed the assets of non-bank intermediaries in all EU countries.

The impact of disintermediation so far seems to remain weaker on the assets side of credit institutions. While the total volume of bonds now exceeds that of banks' loans in several EU countries (Table 2), the EU bond market is largely dominated by government bonds with bank bonds ranking second in terms of their importance (Table 3). The corporate bond market is not very highly developed in the majority of EU countries. The same can be said for the commercial paper market (Table 2), which is still at an early stage of development in many EU countries.

Drawing on the assessment of the EU supervisory authorities, disintermediation is expected to make further advances, driven by competitive forces and IT developments. The relative importance of institutional investors and pension funds is expected to increase further as long as household wealth continues to be managed with an increasing degree of sophistication and, in parallel, public social security systems operating on a pay-as-you-go basis are expected to face problems in the funding of pensions. The changing behaviour of households will be further stimulated by the current low prevailing level of interest rates and by a stable macroeconomic environment, as is envisaged following the introduction of the euro.

Money and capital markets will become deeper and more liquid owing to the euro which, in turn, will create more opportunities for issuers and investors in the euro capital and money markets. This development will probably lead to an increase in the relative importance of market funding vis-à-vis bank funding. Another expected structural change in capital markets relates to the decline in the relative importance of government securities, owing to the reduction of public debt. A growing use of commercial paper is also forecast, but to a lesser degree. To summarise the various changes affecting the financial system, it has often been referred to in the relevant literature as a move from a bank-oriented to a market-oriented environment. In a bank-oriented environment, banks predominate as financial intermediaries by collecting savings (through deposits) and providing the bulk of external funding to the non-financial sector. The dominant position occupied by banks in a bank-oriented system is also characterised by access to information in order to evaluate, price and manage the risks of prospective fund users. In a market-oriented environment, banks face competition from other financial and non-financial intermediaries (e.g. insurance companies, open and closed-ended investment funds), and market funding constitutes a significant source of funds for non-financial firms. In this respect, a large portion of banks' income stems from trading and underwriting, thereby raising the level of information sharing for the benefit of other financial intermediaries.

This distinction between these two phases – bank-oriented and market-oriented – can be useful as a simple illustration of the two poles between which different banking systems can be classified. It should not, however, be forgotten that the situation, in reality, is more complex. There remain many other sources of structural differences between countries, which are often complemented by differences within countries. Indeed, different banks belonging to one national financial system could follow various strategies, deciding to concentrate on traditional banking activities or to move towards market-oriented axes.

It is anticipated that differences in structure between the EU financial systems will continue to prevail in the medium term for a variety of reasons (structural as well as cyclical). In this respect, diverse fiscal treatments at a national level could favour or divert financial intermediation. In Finland, for instance, the tax system favours bank intermediation, since most of the bank accounts

held by individuals are tax exempt. Conversely, different tax treatments (e.g. in Belgium where capital gains are tax exempt) have stimulated a significant growth in undertakings engaging in collective investment in transferable securities (UCITS) and investment funds.

## 1.2 Banks' responses

Recourse to a classification involving two phases (i.e. a bank-oriented and a market-oriented phase) in order to describe the disintermediation process has another shortcoming. It could convey the image of a banking sector inevitably shrinking by way of a sort of Darwinian process in which markets will slowly absorb all functions at present carried out by banks. It is true that banks could lose some of their "specificity" in their core or "traditional" activities. In this context, alternatives for loans can now be provided by non-bank competitors as part of the disintermediation process and the volume of deposits is declining as a result of the continuous increase in products offered by institutional investors which are considered as close substitutes for banks' deposits. The function of banks as providers of payment and settlement services could also be challenged by non-bank financial institutions.

However, such developments represent only one aspect of the evolution of the financial system. The other important aspect is that banks are responding to the changing environment. Those responses can be summarised as follows. On the liabilities side of their balance-sheets, banks respond to the competitive environment as far as deposit-taking is concerned, either by offering further (balance-sheet) products such as bank bonds, certificates of deposit, etc. or by expanding in types of business such as the selling of mutual funds and life insurance. In this respect, banks have also engaged in this business by establishing special financial subsidiaries or entering into co-operative agreements with other financial undertakings, such as insurance companies. Many EU countries have seen the development of "contract banking", with banks offering a wide range of products and services relying on a set of contracts with a range of internal and external suppliers of the components of these ultimate products and services. The value added brought by the bank-contractor is the management of these contracts.<sup>1</sup> An increased degree of subsidiarisation and conglomeration has been reported for all the EU banking systems. In addition, EU banks are actively involved in the disintermediation process. In that context, in the majority of Member States more than 80 % of undertakings for collective investments in transferable securities (UCITS) are controlled by banks<sup>2</sup> (Table 4).

On the assets side, the dominant role of banks as credit providers is, to a large extent, expected to continue in the coming years, extending the growing trend, as a percentage of GDP, which was recorded in previous years (see Table 5) for the following reasons.

For households, bank credit remains a main source of finance in relation to other competitors offering credit facilities (e.g. insurance companies and other non-bank financial intermediaries and enterprises). Moreover, part of household debt takes the form of credit card financing, which is also channelled through the banking system.

For small and medium-sized enterprises (SMEs) whose access to alternative sources of finance is limited or non-existent in most of the EU countries, bank credit, largely based on a close customer relationship, is expected to remain predominant in the years ahead. The main reasons for this could be the asymmetry of information and lack of access to the capital markets for SMEs and the need for close evaluation and monitoring.

<sup>1</sup> D. T. Llewellyn, "Banking in the 21st Century: The transformation of an industry", taken from "The Future of the Financial System, Proceedings of a Conference", Economic Group Reserve Bank of Australia, page 172.

<sup>2</sup> BSC report entitled "Possible effects of EMU on the EU banking systems in the medium to long term", February 1999, page 17.

For large corporations, and mainly for those with a significant international presence, the disintermediation process achieved by bypassing the traditional banking system via financial markets will be reinforced. However, at least four considerations should be mentioned which could ease this process. First, large corporations will continue to demand credit from banks, because bank borrowing could be used as a signal for the capital markets of their creditworthiness (i.e. banks as lenders have evaluated them before undertaking credit risks). Second, credit facilities could be used as an alternative source of financing in the event of market downturns affecting access to the capital markets. Third, market funding could be combined with the use of banks' services in the form of backup lines, syndicated loans, guarantees, underwriting facilities, treasury management, etc. Fourth, large corporations may have a greater degree of flexibility to negotiate the terms and conditions of a bank loan rather than those of a bond issuance.

Finally, banks are not only adapting to a more market-oriented financial structure, but are also contributing to the general development of such a structure through their trading activities or by initiating securitisation operations. Over recent years the value of banks' trading books has increased in almost all EU countries.

### **1.3 Effects on banks' income structure**

Banks responses to the changing financial systems have been most clearly visible in their financial accounts. They are first reflected in their off-balance-sheet activities. These activities increase as banks diversify their product range in order to maintain their degree of competitiveness and to increase their customer base and their fee income. Major off-balance-sheet items are related to traditional types of business (loan commitments, guarantees, etc.) and derivative activities. Off-balance-sheet activities have been growing at remarkably high rates in many EU countries. The derivatives business also has a quite different degree of relative importance across the EU countries. Information on the development of over-the-counter (OTC) derivatives and FX activities from a global perspective is provided in Tables 6 and 7.

The other noticeable change in banks' financial accounts concerns the development of non-interest income. The competition from non-bank financial institutions and the resulting pressure on intermediation margins has led banks to offset the decrease in their interest income by shifting to other sources of income such as fees and commissions.

The analysis of this shift is not only important in order to understand the various forms of disintermediation. It also provides key information for evaluating the extent to which this process could affect banks' profitability. Indeed, the degree of disintermediation is not expected to be equally shared among the different banks and different banking systems; there will be losers and winners as a result of the changing nature of banking activities. Income might be reallocated both across banking systems as well as from banks to non-banks, whether as a result of the increase of competition within the euro area or by non-euro/non-EU area competitors.

## **2 Non-interest income components**

Non-interest income is a mixture of heterogeneous components that differ in terms of their relative importance (i.e. their share in banks' non-interest income). Therefore an empirical investigation of the sub-components of non-interest income was carried out for the period 1993

to 1998 and the empirical findings are shown in Tables 8 to 17. The breakdown was based on the layout provided by the Banking Accounts Directive (BAD).<sup>3</sup>

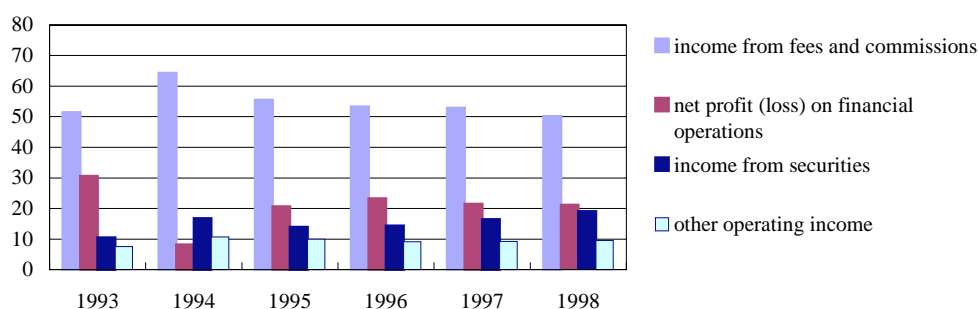
It should be noted that the data collected for this fact-finding exercise must be considered with caution. Comparisons between countries can be affected not only by structural differences, but also by divergences in the accounting treatment of the various sources of income, by differences in the reporting schemes or by variations in the bank samples used for the purposes of the analysis. Although these factors should not, *in principle*, affect the comparison of data relating to the same country over time, such a trend analysis is sensitive to the cyclical evolution or to the lack of long series of data. In several countries there is also a tendency for banks to entrust some of their non-interest activities (such as private banking and corporate banking) to subsidiaries specifically created for that purpose. This could determine an additional bias as the only data available for this report were provided on an unconsolidated basis. It should be noted, however, that income from banks' subsidiaries or affiliates of the same financial group is also captured on an unconsolidated basis in an indirect way, as it is recorded as income from participating interests and income from shares in affiliated undertakings which are sub-components of income from securities, one of the non-interest income components.

Non-interest income<sup>4</sup> was calculated as the sum of net fees and commissions (fees and commissions receivable less fees and commissions payable), income from securities and the net profit (loss) on financial operations and other operating income. The following charts show developments in terms of relative importance for each of the main components of non-interest income as a percentage of total non-interest income for the EU and euro area banking systems<sup>5</sup> (weighted averages) and for the period 1993-98.<sup>6</sup>

## Chart I

### Components of non-interest income

(percentage points; euro area weighted average)



3 The Banking Accounts Directive (BAD) is Council Directive 86/635/EEC of 8 December 1986 on the annual accounts and consolidated accounts of banks and other financial institutions.

4 According to Article 27 of the BAD income from securities corresponds to point 3 of the vertical layout, net commissions to point 4 minus 5, net profit on financial operations to point 6 and other operating income to point 7. For the purpose of the statistical exercise, other ordinary items (BAD, Article 27, points 12 and 14) and extraordinary items (Article 27, points 17 and 18) were not included.

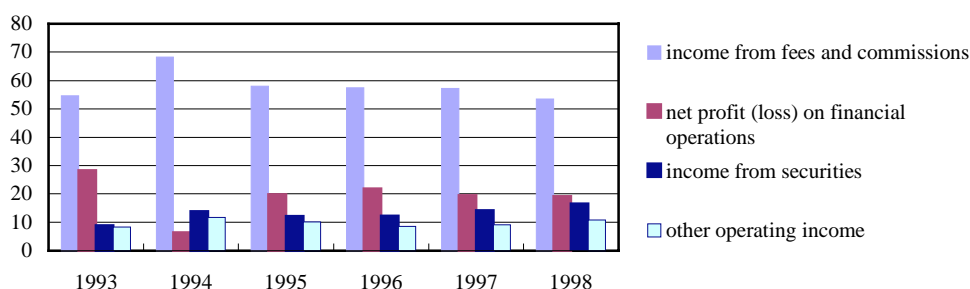
5 The EU refers to the 15 countries comprising the European Union, whereas the euro area consists of the 11 EU countries which entered into Stage Three of Economic and Monetary Union and adopted the euro as their national currency.

6 In order to overcome the non-availability of data from three countries (Finland, Ireland and the United Kingdom) for the first two years of the observation period, the EU and euro area weighted averages for the years 1993 and 1994 include, as proxies, the 1995 figures for these three countries.

## Chart 2

### Components of non-interest income

(percentage points; EU weighted average)



#### Fees and commissions

*Fees and commissions* represent by far the most important component, accounting for 58 % of all non-interest income (EU weighted average for the period 1993-98). The relative importance of this source of income has recorded a downward trend over the period 1994-98. The difference in levels between the EU and the euro area (the weighted average for the euro area was 55 % for 1993-98) is mainly explained by the high relative importance of fees as part of the non-interest income for the United Kingdom banks (72 % in 1998, see Table 8). At the other extreme, income from fees and commissions only represented 35 % of non-interest income in Portugal and Sweden and 36 % in Belgium in 1998.

#### Net result of financial operations

The *net result (profit or loss) of financial operations* (comprising net result on transactions in securities which are not held as financial assets together with value adjustments and value re-adjustments on such securities, net result on exchange activities and net result on other buying and selling operations involving financial instruments, including precious metals) constitutes the second component of non-interest income in terms of its relative importance. A notable fluctuation is apparent in the relative importance of this non-interest income source, with the ratio of net result of financial operations to non-interest income varying between 6 % and 28 % for the EU and between 8 % and 31 % for the euro area for the period 1993-98. This major fluctuation reflects the low level in the EU and euro area averages in the year 1994 with, however, significant fluctuations across the EU countries, with Denmark and, to a lesser extent, Spain appearing as outliers. (Table 9). The bond markets crisis of that year has, probably, played a significant role in this respect.

It is also worth noting that net profit on financial operations, in terms of its relative importance as a source of non-interest income, did not reach the 1993 levels for the remainder of the observation period in many of the EU countries. As evidenced by national data, this reflects lower levels of such income in eight EU countries rather than changes in the relative importance of other non-interest income components. For the last four years (1995-98) the relative importance of the net profit on financial operations as a non-interest income source has shown greater stability, ranging from 19 % to 22 % for the EU, with somewhat higher levels (from 21 % to 23 %) for the euro area. As shown in Table 9, there are marked differences between countries, the

relative importance of this source of income varying from 44 % in Belgium and 43 % in France to 6 and 8 % in Denmark and Ireland in 1998.

### **Income from securities**

*Income from securities* (including shares, variable yield securities and other participating interests) accounted for 9 % to 17 % for the EU and between 10 % and 19 % for the euro area (the difference being explained by the low level of that source of income in the United Kingdom) for the observation period 1993-98. A notably lower level of this ratio was recorded in 1993; 9 % for the EU and 10 % for the euro area.

This source showed a steadily increasing trend in terms of its relative importance as a percentage of non-interest income for the period 1995-98 and, apparently, has been influenced by the generally favourable economic conditions.

Table 10 indicates that income from securities is a relatively important source of non-interest income in Sweden, Germany, Denmark, Austria and Spain (between 24 % and 35 % of non-interest income in 1998), but marginal in the United Kingdom (1 %). It should be noted that comparisons of the results of individual countries can be heavily influenced by differences in corporate structures (diversification through subsidiaries does not reach the same level of significance in the various countries).

### **Other operating income**

*Other operating income* constituted, on average, around 10 % of total non-interest income for the EU and the euro area throughout the period 1994-98 (Table 11).

### **Main sub-components of income from fees and commissions**

Tables 12 to 16 provide a breakdown<sup>7</sup> of the main components of income from fees and commissions for those countries for which this information is available. Owing to limited data availability, EU and euro area aggregates cannot be provided.

Commissions on *foreign exchange transactions* represented 26 % of the total income from fees and commissions in Greece and 12 % in Austria in 1998, but were of marginal importance in Italy, Spain, Finland, France and Portugal (Table 12).

The importance of commissions charged for *guarantees* (Table 13) seems to be relatively high in terms of the total income from fees and commissions in Portugal, Belgium (14 % and 11 % respectively in 1998) and Denmark (no data available in 1998), and relatively low in France and Italy (5 % or less). In general, a slight decreasing trend in terms of relative importance is observable for most of the reporting countries (with the possible exceptions of Denmark and Greece).

Commissions for *securities transactions* (Table 14) also present striking differences in terms of their relative importance, probably reflecting different financial structures; this is the case for Italy and Finland, both of which show a marginal level. Conversely, commissions for securities transactions constitute a basic source of fees and commissions in Belgium, the Netherlands, Austria, Portugal and Greece.

<sup>7</sup> Based on the classification provided by the BAD.

Commissions charged for *payment transactions* (Table 15) vary significantly in terms of their relative importance, accounting for 50 % of the total income from fees and commissions in Spain, but only 11 % in Italy in 1998. The relative importance of this source of income is showing a decreasing trend in some countries (Spain, Portugal, Austria, the Netherlands, Belgium and, possibly, Italy).

Finally, the relative importance of commissions charged for *the safe custody and administration of securities* is rather limited, except in Belgium, in France and in Finland, where these activities represented, respectively, 13 %, 10 % and 10 % in 1998 (Table 16). In some countries, this category of income is included in commissions for securities transactions.

As a summary, Table 17 illustrates the mix of non-interest income prevailing in the various EU countries (the relative importance of non-interest income and its components per country and averages for the EU and euro area in 1998 and for the period 1993-98).

As the breakdown of quantitative data does not specify all the separate categories of the non-interest income sub-components, additional information on all the important sub-components of non-interest income are provided in Annex I, based on qualitative responses by national authorities. In terms of volume (reflecting their relative importance as non-interest income related activities), the more important activities generating fees seem to be payment transactions, securities transactions on behalf of third parties, provision of guarantees, credit card fees, proprietary trading (notably in securities and foreign exchange) and private banking.

In terms of future prospects, advisory activities, private banking, credit card fees, brokerage fees in connection with insurance contracts and derivative activities are expected to gain in importance, while less significant sources of banks' revenues would be correspondent banking, fees from foreign exchange transactions and fees from payment transactions.

### **3 Main features of non-interest income**

This section examines in greater detail the implications for banks of the development of non-interest income by considering certain stylised facts about non-interest income:

- Is there any degree of substitution of non-interest income for interest income (Sub-section 3.1)?
- Is there a link between the relative importance of non-interest income and the overall level of profitability (Sub-section 3.2)?
- Does size facilitate the development of non-interest income (Sub-section 3.3)?
- Is there a correlation, whether positive or negative, between the respective developments in interest and non-interest income (Sub-section 3.4)?
- Is non-interest income less volatile than interest income (Sub-section 3.5)?

#### **3.1 Substitution of non-interest income for interest income**

Statistical analysis supports the common perception of a progressive move from interest income to non-interest income for the EU banks. For the purpose of this analysis two sets of data have been used: the OECD database for capturing structural developments over the past years (i.e. for the 1989-95 period for which aggregate data for the EU and euro area are provided in Table 18)

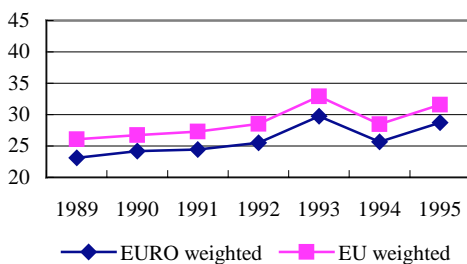


and detailed data broken down by country for more recent years (1995-98) provided by the national authorities<sup>8</sup> (see Tables 19 to 27).

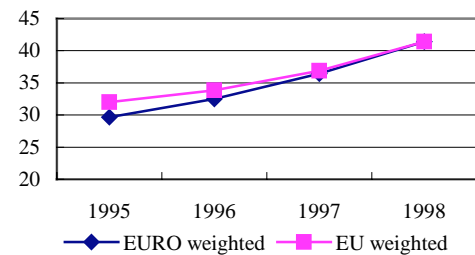
The change in the structure of income of the EU banks is confirmed by the data on non-interest income as a percentage of total gross income for the period 1989-95. For the period 1995-98 the same increasing trend is also confirmed by the ratio of non-interest income to operating income<sup>9</sup> for the EU and euro weighted averages (see Chart 3 below).

**Chart 3**

Non-interest income as a percentage of gross income  
Period 1989-95



Non-interest income as a percentage of operating income  
Latest developments 1995-98



A trend for an increase in non-interest income as part of total income has been confirmed by the existing data for the whole period 1989-98, which is long enough to verify a structural change in the EU banks' income composition. The latest developments in the EU banks' income structure are attracting more analytical investigation as they reflect the current situation of the EU banking system. Against this background, the contribution of non-interest income to banks' operating income increased by 9 percentage points in just three years, from 32 % in 1995 to 41 % in 1998 for the EU. For the euro area, the increase was even more noteworthy, from 30 % in 1995 to 41 % in 1998. (Table 19). Among the few exceptions, those countries where non-interest income did not show a steady pattern of increase as a percentage of operating income in 1995-98 are the United Kingdom and Greece.

Structural differences with regard to the level of non-interest income as a percentage of banks' total operating income across the EU countries can also be seen from the data in Table 19. The ratio quoted above varies from 55 % in Luxembourg and around 53 % in Sweden and France to 37 % in Denmark, 36 % in Spain and 33 % in Germany at the 1998 year-end. As such, the growing relative importance of non-interest income in total operating income does not indicate the extent to which this trend is due to the dynamism of non-interest income or to an ongoing reduction in

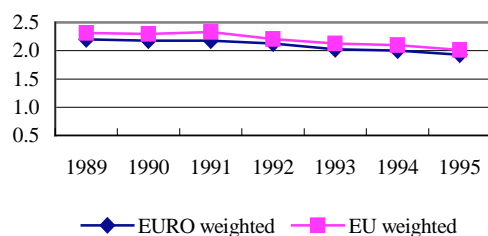
8 Data provided by the national authorities cover the "benchmark" years 1980, 1985, 1990, 1995 and the most recent years 1995, 1996, 1997 and 1998. However, owing to the limited availability of data, EU and euro averages are provided on the basis of this data source only for the period 1995-98.

9 Operating income corresponds to the sum of net interest income and non-interest income. However, in some cases slight differences have been evidenced between the sum of non-interest and interest income on the one hand and operating income on the other hand, mainly due to the non-harmonised statistical framework. Gross income (according to the OECD definition) is also the sum of net interest and non-interest income. Gross and operating income may not be fully comparable since, in the category of "other" (sub-category of non-interest income) according to the OECD definition, extraordinary or irregular categories of income may be included. According to the data collection scheme for national data provided by national authorities, no extraordinary income has, in principle, been included in other operating income.

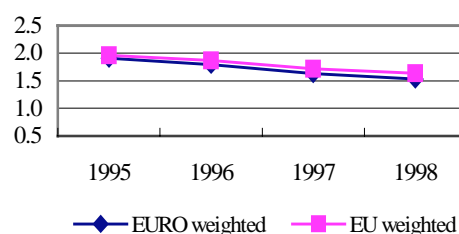
interest income. The trends in the respective developments of non-interest and interest income are, over time, more clearly evidenced on the basis of the respective ratios of non-interest income, net interest income and total operating income to total assets (Tables 20, 21, 22). Developments in the EU and the euro area for the period 1995-98 are shown in the following charts.

#### Chart 4

The ratio of net interest income to assets for the EU and the euro area  
Period 1989-95

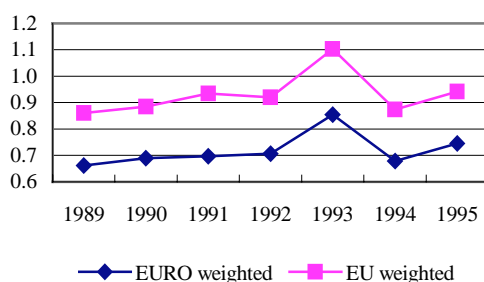


Latest developments 1995-98

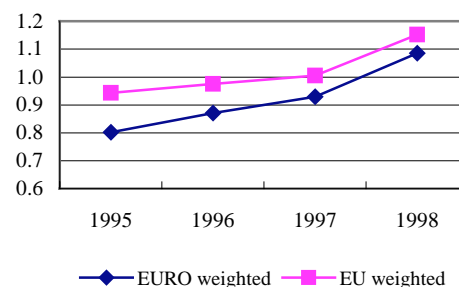


#### Chart 5

The ratio of non-interest income to assets for the EU and the euro area  
Period 1989-95

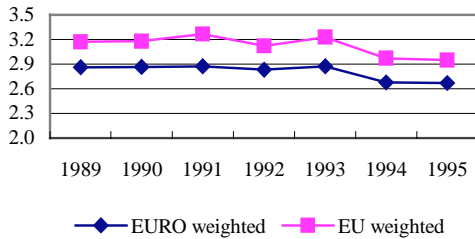


Latest Developments 1995-98

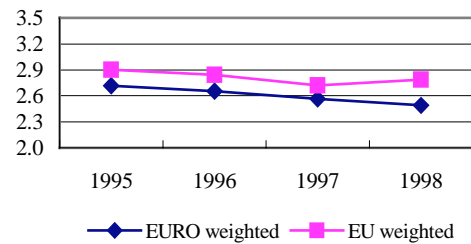


## Chart 6

The ratio of gross income to assets  
for the EU and the euro area  
Period 1989-95



Latest developments 1995-98



As shown in Chart 5, the ratio of non-interest income to assets increased in the EU and euro area in the period from 1989-98. However, over the earlier years of the observation period (1989-95) there was not a continuous upward trend. Indeed, the non-interest income to assets ratio increased in the EU and the euro area for the period 1989-93, reaching a peak in the latter year. Over the next two years (1994 and 1995) the ratio has remained below the 1993 level.<sup>10</sup> With regard to last years' developments, there was a considerable increase in this ratio, which rose from 0.80 % to 1.09 % between 1995 and 1998 in the euro area and from 0.94 % to 1.15 % in the EU.

Conversely, reductions in the ratio of net interest income to assets (Chart 4) followed a clear, common and continuously declining pattern in the EU and the euro area for the period 1989-98. In the most recent years under review, a decline was recorded from 1.96 % to 1.63 % in the EU and from 1.91 % to 1.53 % in the euro area. This development reflects the decreasing interest margin throughout the EU in the last few years.

The relative importance of net interest income is also sensitive to the economic cycle, a shift in the yield curve or the realisation of capital gains in the bond portfolio at the expense of the interest margin. In fact, the first two of the above-mentioned variables have recently exerted a positive influence on interest income, as economic activity has recorded significant growth while a general, symmetrical downward trend in interest rates has temporarily boosted the income provided by maturity transformation. The fact that interest rate margins recorded a reduction despite those positive factors seems to be a clear indication of the strong competitive pressure faced by banks in their classical intermediation activities.

As shown in Chart 6, this decrease in net interest income (as a percentage to assets) has not been fully offset by the increase in non-interest income (ratio of non-interest income to assets). Indeed, over the past few years (1993 being an exception), the gross income to assets ratio showed a declining profile in both the EU and the euro area. For the last four years of the observation period, the same trend has been observed in the development of the operating income to assets ratio, which decreased between 1995 and 1998 from 2.72 % to 2.49 % in the euro area and from 2.90 % to 2.79 % in the EU.

<sup>10</sup> The two "extreme" values of the ratio of non-interest income to assets in 1993 and 1994 seem to have been influenced by the abrupt changes in the relative importance of the "profit on financial operations" sub-component of non-interest income (Table 9).

It is notable that operating income as a percentage of total assets rose in all the non-participating countries in 1998, and, as a result of this, the EU average also increased as compared with the 1997 figure. By contrast, the respective ratio for the euro area showed a steady decline for the whole period 1993-98.

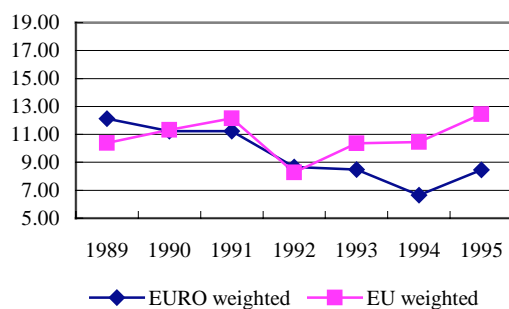
### 3.2 The relation between non-interest income and profitability

As structural changes and competitive pressures are expected to squeeze traditional interest margins further, it is important to consider whether the development of non-interest income offers banks an acceptable alternative by which they can safeguard their overall profitability.

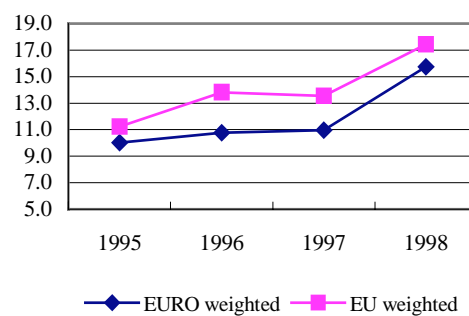
As already shown, the rise in non-interest income did not fully offset the reduction in the interest margin, as the aggregate ratio of operating income to total assets has, in general, declined. With regard to developments in profitability, the picture is varied, showing an unstable profile for the years 1989-95 (Table 18). However, during the period 1995-98 banks' profitability (return on equity, ROE)<sup>11</sup> in the EU and the euro area did not follow a downward trend, but remained broadly stable at a relatively higher level in 1995-97 than in the earlier period and, moreover, showed a further notable improvement in 1998 (Table 23). The same applies to the ratio of return on assets (ROA)<sup>12</sup> for the same period (Table 24). The weighted average for the ROE (*profits before tax to total year-end equity*) is shown in Chart 7 for the years 1995 to 1998.

**Chart 7**

Return on equity (weighted)  
Period 1989-95



Latest developments 1995-98



This evolution may indicate that although the growth of non-interest income did not fully offset the reduction in the interest margin, this growth nevertheless helped to consolidate the banks' overall profitability at the 1995 level and, moreover, given the favourable economic conditions, to achieve a remarkable improvement in the overall profitability of the EU banking system for the last year of the observation period (1998). This average result can, however, conceal marked differences in profitability across the EU countries and across banks in every country (differences in the levels of profitability across EU countries are shown in Tables 23 and 24).

<sup>11</sup> The ratio of banks' profits before tax to year-end equity.

<sup>12</sup> The ratio of banks' profits before tax to year-end assets.

In order to compare the situation prevailing in the various countries, Spearman's rank correlation test was used to detect whether there was a correlation between the rankings of countries according to profitability (ROE), and their ranking according to the relative importance of non-interest income. In this respect, the EU countries were ranked in descending order according to the ratio of non-interest income to operating income and their return on equity ratio (from 1 to 15 for 1998, 1997 and 1995). For each of the above-mentioned years, Spearman's rank correlation coefficient was calculated.<sup>13</sup>

This test showed a relatively low negative relationship between non-interest income as a percentage of total operating income and ROE for the EU countries in 1998 and 1997, and a very low positive one in 1995 (Table 26). The mixed results and the low degree of relationship, as measured by applying the Spearman's rank correlation test, do not allow for drawing conclusions on whether a higher proportion of non-interest income corresponds to higher level of profitability across the EU. The negative relationship evidenced for the last two years is even less supportive of this working assumption.

The same method was applied to test a possible correlation between the ratio of non-interest income to operating income and the ratio of operating cost<sup>14</sup> to operating income (Table 27). This second test showed a rather loose positive relationship in all three years of the observation period (1998, 1997 and 1995). Although, in this case as well, the relatively low degree of correlation does not allow for drawing conclusions, the positive relationship evidenced in all the three years could imply that an increase in non-interest income is accompanied, to a certain extent, by an increase in the level of operating costs.

One conclusion stemming from these tests is that the growth of non-interest income could, indeed, fail to lead to higher profits if a relatively large part of the "additional" non-interest income is absorbed by increased costs. For instance, a growth on the cost side of fees payable could result from a growth on the revenue side, e.g. if the development of asset management fees coincides with a rise in fees paid to financial advisors employed as agents. Similarly, contract banking, which is gaining importance across the EU countries, could also be associated with an increase in brokerage fees payable.<sup>15</sup> The development of fee income could also entail higher labour costs in some areas which are more personnel intensive (e.g. advisory services, for which more experienced and better qualified personnel are needed). In this respect, higher administrative costs (other than personnel costs) may be associated with some activities, such as underwriting and proprietary trading.

### 3.3 Non-interest income and the size of banks

The relationship between the size of banks and non-interest income should indicate to what extent larger banks have more possibilities than smaller ones to generate and sustain non-interest income and to translate it into higher levels of profits and increased value for shareholders. The examination of the relation between size and non-interest income was based on qualitative information provided by the national supervisory authorities. The main finding is that large banks,

<sup>13</sup> Spearman's correlation test was preferred as a commonly used statistical test appropriate for ranked variables. By measuring the correlation of ranked variables, the impact of "extreme" values on the correlation measurement is diminishing. Moreover, this process of ranking variables reduces the effect of differences in those variables due to the non-harmonised database (e.g. if a country is ranked 7th according to its ratio of non-interest income to operating income, any discrepancies stemming from data accuracy or differences in calculation have no impact on the correlation measurement if they lie between the values exhibited by the countries ranked one place higher (6th) and lower (8th)).

<sup>14</sup> The operating cost was calculated on a net basis, being the sum of general administrative expenses and value adjustments in respect of assets (BAD, Article 27, points 8 and 9 in the vertical layout). For the developments in the ratio of operating cost to operating income across the EU countries see Table 25.

<sup>15</sup> Banks sell sophisticated products to their clients (structured products) which have been engineered by third party specialists.

international groups and financial conglomerates seem to be at a competitive advantage as the larger scale of operations appears to offer increased opportunities for specialisation and cross-selling of products. Among the advantages are the achievement of a critical mass, economies of scale and scope, the provision of a large spectrum of products and services, increased productivity, and efficient cost, structure and risk diversification.

Matters which could be regarded as disadvantages are the potential existence of internal conflicts and culture clashes resulting from a structure supporting a high diversity of activities. This problem may be heightened by the policy of growth by acquisition followed by many of the larger banks. Other possible disadvantages could be “product cannibalisation”<sup>16</sup> and complexity, the latter resulting from the organisational structure where different cultures linked to the different non-interest income activities (trading, consulting, engineering, etc.) are usually more heterogeneous than in traditional intermediation activities. Problems of internal competition and difficulties of maintaining relations at arm’s length have been countered in some countries by the creation of special subsidiaries (e.g. in Belgium, for private banking and the management of UCITS by separate entities).

However, small banks could also be successful in non-interest income business by operating in niche markets, such as the SME sector, or by servicing high net worth individuals offering, inter alia, private banking activities. Smaller banks may exploit localisation advantages by specialising in the distribution of services to local clients. Smaller banks also appear to be more flexible in their approach to structural change. However, the higher revenue ratios from non-interest income activities recorded by small banks often fail to carry over into profitability because they translate into a higher ratio of cost to income.

### 3.4 Correlation between interest income and non-interest income

If the two components of banks’ income demonstrate a different cyclical behaviour, non-interest income could exert a stabilising influence on banks’ results by offsetting the fluctuations in interest income. On the basis of the OECD database, an empirical search for a correlation between interest and non-interest income, both expressed as a percentage of the average balance-sheet total, for individual countries was carried out for the years 1980-97 (this being the maximum period of coverage)<sup>17</sup> and the findings are presented in Table 28. A correlation coefficient significantly lower than one would indicate a stabilising influence, while a negative correlation would even imply that any decreases in interest income (e.g. due to a reduction in interest margins, increased competition) could be expected to be compensated by an increase in non-interest income.<sup>18</sup>

16 “Product cannibalisation” refers to the process of promoting one product against other(s) offered by the same financial institution belonging to a financial group or conglomerate (e.g. promoting mutual funds or insurance products at the expense of deposits).

17 The period covered differs according to the availability of data across the EU countries at the time the relevant calculations were carried out. Specific reference to the precise period covered is made in Table 28.

18 As values of the correlation coefficient approach  $-1$ , statistical evidence more strongly supports the view that non-interest income could compensate for a reduction in net interest income. However, such a stabilising influence occurs when the correlation coefficient is less than  $+1$ . (i.e. all that is technically required is that the two types of income be less than perfectly correlated). Considering  $y = y_1 + y_2$

where  $y_j$  is the income earned from activity  $j, j=1,2$ . Then, the total variance of income is:

$$\sigma^2 = \sigma_1^2 + \sigma_2^2 + 2\sigma_{12} = \sigma_1^2 + \sigma_2^2 + 2\rho_{12}\sigma_1\sigma_2$$

where  $\sigma_j^2$  = variance of income  $j = 1,2$

$\sigma_{12}$  = covariance of income 1 and 2

and  $\rho_{12}$  = simple correlation between income 1 and 2.

The maximum value that  $\sigma_{12}$  can take is  $\sigma_1\sigma_2$ . So if  $\rho_{12}$  is less than 1, then diversification may offer scope to minimise the variance of income.

With regard to the empirical evidence, it is worth mentioning that all EU countries, with the exception of Ireland<sup>19</sup>, exhibited a correlation of net interest income with non-interest income much lower than one, and that in eight EU countries (France, Luxembourg, Spain, Belgium, Germany, the Netherlands, Austria and Portugal) a negative correlation was recorded. Only the first three of these countries recorded marked negative values, which might be a sign of a more significant inverse relationship between non-interest and interest income.

In general, the statistical results are heterogeneous and seem to indicate an inverse correlation between interest and non-interest income for several EU countries, although this varies in significance from being of limited importance to rather noteworthy. However, the results should be interpreted with caution, mainly due to the fact that the composition of non-interest income did not remain stable during this period, which could cause further difficulties in assessing the future behaviour of this source of income in cyclical downturns.

In that context, some parts of non-interest income are cyclically influenced, as is the case for income from securities, merger and acquisition activities, proprietary trading, and income from participating interests. Other parts of non-interest income (e.g. custodian services and fees on payment services) are less cyclical. Moreover, commercial reasons and the pricing policy adopted by banks could clearly influence the correlation between interest income and non-interest income. Indeed, in many cases, banks are substituting non-interest income for interest income. This substitution can be direct – e.g. when the pricing of a payment service no longer takes place through an interest margin or a system of date of value but through a fee, or indirect – e.g. when a decrease in households' investments in banks' deposits (source of interest income) is counterbalanced by the commercialisation of mutual funds (source of non-interest income). Similarly, banks may decide to provide a fee-generating product (i.e. a guarantee) instead of a credit facility.

The development of new activities is not necessarily autonomous. This development can be completely independent of previous activities, but may also be cross-subsidised by cutting back on more traditional activities. For instance, banks could offer credits with razor-thin conditions in the hope of developing a regular flow of guarantee (fee) business with their clients.

### **3.5 Volatility of the various sources of income**

Non-interest income could contribute to stabilising banks' overall results - not only through their inverse correlation with interest income - but possibly also as a result of lower volatility. Volatility has been calculated, for interest vis-à-vis non-interest income, both expressed as a percentage of the average balance sheet total, on the basis of OECD figures. It should be noted that due to the availability of data, the period covered is not the same for each country. Cross-country comparisons are thus not very relevant, as cyclical evolution greatly influences the volatility of the various sources of income. Caution also ought to be exercised with regard to the incidence of differences in reporting schemes, accounting methods, sizes of banks' samples, etc. The realisation of capital gains could also influence the volatility of both net interest and non-interest income.

Tables 29A to 29D present the empirical findings with regard to *volatility of interest and non-interest income* for EU countries and some of the major third countries' banks (United States, Japan and Switzerland). It should be stated that for the purpose of this empirical investigation, the statistical indicator used to measure volatility is *the coefficient of variation*, notably the ratio of sample

<sup>19</sup> OECD data are only available from Ireland for a three-year period and the results of the correlation should not be regarded as conclusive and interpreted with caution.

standard deviation to sample mean, multiplied by 100. The coefficient of variation has been considered to be an appropriate statistical indicator for measuring relative variability across samples or groups of data (e.g. across countries), since it is not influenced by the problem of the scaling of data.<sup>20</sup> The data used were expressed as a percentage of the average balance sheet in order to limit the impact of the trend growth in nominal value. The volatility of non-interest income was also compared with the volatility of net interest income minus provisions on loans and net interest income minus total provisions.

The results are heterogeneous for the various countries included in the sample. For the EU countries, net interest income was found to be more volatile in eight countries (Belgium, Finland, Greece, Ireland, the Netherlands, Portugal, Spain and the United Kingdom), whereas non-interest income was a more volatile source of income for seven countries (Austria, Denmark, France, Germany, Italy, Luxembourg and Sweden). For the EU and the euro area (weighted average) non-interest income was found to be more volatile than net interest income (20 % vis-à-vis 16 % for the EU and 18 % compared with 16 % for the euro area). However, after “correction” for provisions, net interest income becomes more volatile than non-interest income for most of the EU countries. Although due caution should be exercised in drawing conclusions given that differences exist across the EU countries with regard to the level and timing of provisioning on non-performing loans, this could imply that banks moving into non-interest income activities do not necessarily move into more volatile types of businesses.

### **Volatility of the main components of non-interest income**

As evidenced above, non-interest income sources are quite heterogeneous and the overall volatility of this source of income could easily conceal quite divergent profiles for the various sub-components. Volatility has been calculated for the main components of non-interest income. As the time series is quite short, covering only a six-year period (1993-98), it should be viewed with caution.<sup>21</sup> Nevertheless, there is a clear indication of strong differences in the volatility of the various categories of non-interest income.

The coefficient of variation was also used as a statistical indicator for measuring the volatility of the main components of non-interest income (Table 30). However, a different approach was followed,<sup>22</sup> whereby the coefficient of variation was calculated on the basis of the national data for non-interest income and its components, which were converted into ECU. The short period for which data were available and in which low levels of inflation prevailed across most of the EU countries allows for the conversion of national data into ECU and the calculation of the EU average. The use of values instead of ratios may have the advantage that the result is not affected by the changes in the denominator. *Profit on financial operations (capital gains)*, consisting of proprietary trading in securities and proprietary trading in foreign exchange and in derivatives, is the most volatile part of non-interest income, showing a strong sensitivity to changes in the economic or market environment. The average volatility (unweighted figure) for the 12 EU countries for which data are available recorded significantly higher levels than the overall average level of volatility for non-interest income (56 % compared with 27 %, see Table 30). It should be

20 To illustrate, if for country A and country B the standard deviations (s.d.) are calculated as 2 and 20 respectively, then simply by comparing the s.d.s and taking into account the scaling impact we may conclude that B is more volatile. This is not true if, for example, the means are 10 and 100 respectively, in which case they both have the same volatility or variability around their mean. The coefficient of variation (i.e. s.d. divided by the mean) provides the right volatility measurement corrected for the difference in the scaling of data.

21 This was the longest period for which detailed data on the components of non-interest income could be provided. However, alternative data sources (e.g. OECD data) provide an analytical breakdown of the main components of non-interest income for an even shorter period for most of the EU countries.

22 In assessing the volatility of the components of the non-interest income, the coefficient of variation was calculated on the basis of national figures converted into ECU, whereas in assessing the volatility of non-interest vis-à-vis interest income the coefficient of variation was calculated on the basis of relevant ratios (namely, non-interest income and interest income both expressed as a percentage of average total balance sheet).



noted, however, that this figure is largely influenced by the volatility recorded in some countries (notably in Denmark) as a result of the accounting method used in that country to evaluate banks' portfolios of securities.

### Box I

Differences in accounting principles and their implications for non-interest income and banks' profitability – the case of the Danish banking system

According to the Danish accounting system, the greater part of banks' securities and derivatives portfolios are marked-to-market in the banks' accounts and this has an important short-term impact on the income and financial results. In that context, Danish banks recorded high net capital gains<sup>23</sup> in 1993 which were 1.6 times higher than total net dividend and fee income for that year, while in the following year a net capital loss was recorded which, in terms of relative importance, amounted to 68 % of total dividend and fee income in 1994. In 1995 and 1996 the capital gains of Danish banks following the marked-to-market approach for their securities' portfolios were positive, estimated at 58 % and 23 % as a percentage of dividends and fee income for the respective years.

Conversely, most of the EU accounting systems are based on the LOCOM<sup>24</sup> principle, and the use of this method could cause potential hidden reserves when evaluating the securities portfolios (e.g. at the year-end). Moreover, it could also cause an abrupt increase in the net profit on transactions in securities when these capital gains are realised.<sup>25</sup>

Accounting differences and techniques such as these could be accountable for at least part of the differences observed in the empirical analysis.

**Income from securities** also appears to be a volatile part of non-interest income. The relatively high volatility (51 % for the 12 EU countries in the observation period, see Table 30) has, apparently, been affected by the favourable economic conditions prevailing over recent years. However, the part of this income source stemming from their subsidiaries (or from participating interests held in financial institutions) conducting fee income business is expected to show a pattern similar to that of fees and commissions.

**Fees and commissions** are the most stable component of non-interest income. Therefore, further development of this source of revenue, which already constitutes the largest part of non-interest income, could contribute to a further reduction in the global volatility of banks' income. However, those fees and commissions are themselves quite heterogeneous.

In general terms, fees and commissions could be divided into:

- those activities which are least affected by market and cyclical evolution. Those activities include payment transactions, safe custody and account administration, and correspondent banking;
- those activities which are, more or less, closely linked with market or cyclical evolution. This category includes underwriting activities, brokerage fees, treasury management, transactions on derivatives and credit card business. Also in this category are merger and acquisition activities, which are connected with the evolution of the financial cycle.

Moreover, the part of the non-interest income stemming from institutional investors belonging to the same banking group could be quite stable and, to the extent that these financial groups can

23 Estimated to be DKK 9.2 billion.

24 Lower of cost or market.

25 In this respect, cross-selling of securities portfolios could create unrealised gains counterbalancing other negative results.

offer to their clients investment and pension funds as alternatives to traditional deposits, is rather similar to interest income.

## 4 Banking risks and supervisory issues

### 4.1 Non-interest income

The increased incidence of activities generating non-interest income has implications for the risk profile of banks. As shown in Chapter 3 above, the overall volatility of this source of income does not seem to differ significantly from that of interest income. Indeed, some components of non-interest income, such as profits on financial operations (capital gains) have, in fact, a very high volatility. In addition, the negative correlation between interest and non-interest income is rather weak and could result partially from the commercial and pricing policies adopted by banks. In recent years the development of non-interest income activities has enabled banks to safeguard their overall profitability in an environment characterised by pressures on interest margins. However, competition is likely to increase and the extension of activities generating non-interest income often implies significant costs.

The shift from interest income to non-interest income does not allow banks to avoid risks associated with traditional activities, even if the mix or balance of the various risks could be modified. To the extent that the development of non-interest income is accompanied by a relative reduction in the classical intermediation activity of banks, it should help to reduce *credit risks* incurred by banks. However, greater reliance of the best borrowers on the securities markets may increase the concentration of borrowers classified as bearing a higher level of risk on banks' balance sheets.

In this respect, new techniques, such as credit derivatives or securitisation, enable banks to provide advisory and asset management services while transferring the credit risks to other market participants. However, this process can have both advantages and disadvantages as banks can also buy credit risks via credit derivatives. In addition, some non-interest generating products have the opposite effect as they are used by banks to assume credit risks without supplying any financing (this is the case, for example, for the provision of guarantees). Through the use of credit derivatives, banks could also achieve a better sectoral or geographical assets balance, thus mitigating the risks associated with a possible concentration on their credit activity. However, this approach relies on markets the liquidity of which could quickly dry up and does not enable banks to avoid the problem of correctly pricing their credit risks.

The development of non-interest income could lead banks to bear additional *market risks*. If this could mitigate the sensitivity of banks to the credit cycles linked to downturns in economic activities, it could, at the same time, reinforce their sensitivity to market cycles related to fluctuations in interest rates, stock exchanges or foreign exchange markets. In comparison with those credit activities which are mostly dependent on ongoing relations, market activities are more frequently linked to individual deals. These activities do not usually provide banks with the same opportunity as a credit relation to develop a thorough knowledge of their clients.

The expansion of activities generating non-interest income has also led to an increase in the importance of other categories of risks, including operational, reputation and strategic risks.

*Operational risks* have several facets. To develop complex new products, banks need to upgrade the level of skills of their employees. They also have to organise good follow-up of their new

activities, which necessitates an adequate internal control mechanism. This is particularly important when banks diversify their range of services and enter new geographical areas, such as emerging markets, which present political and country risks. Financial groups and conglomerates could also face a higher level of operational risks resulting from the complexity of their organisational structure. The risk of internal competition within the group or the conglomerate cannot be ruled out, together with a risk of “cultural mismatch” within the group.

A specific form of operational risk is linked to the difficulty that some banks may face in correctly measuring the cost of quite complex products. An accurate evaluation of the cost of individual products will become more necessary and cross-subsidisation will become increasingly hard to maintain in the future. Against this background, those banks that are not well prepared for the task of evaluating costs via appropriate cost accounting systems and correctly pricing their products may face increased operational risks.

*Reputation risk* also takes different forms. In the event of ill-advised proposals, banks could face legal disputes and be held liable, more specifically but not exclusively vis-à-vis non-professional clients. Technical errors or operational mistakes are another source of potential liabilities. Even when they are not considered legally responsible, banks could experience a sense of moral obligation to offset part of the losses incurred by their clients, if only to avoid adverse publicity and to preserve their reputation. The requirement to maintain an image of competence, professionalism and fairness is all the more crucial in that non-interest related activities rely on the ability of banks to generate new deals all the time. Reputation risks may also increase as a result of the development of contract banking. This last form of organisation, implying co-operation agreements and alliances with third parties, banks and non-banks, also increases the risks of legal disputes (legal risks).

Finally, in order to react to the changing nature of banking and financial services in an adequate way, banks have to take *strategic risks*. In particular, they have to redefine their objectives in order to safeguard a sustainable level of profitability in the future. For some banks, this will imply a greater specialisation, based on a correct assessment of their specific strength, with the risk of making wrong choices or adopting herding behaviour. Indeed, as some products (e.g. private banking and asset management) seem to be a promising area for future profits, too many banks could be tempted to focus on the same non-interest income related activities. Many banks are also diversifying their activities through mergers or acquisitions, not only in banking but also in the insurance or investment services sectors; in order to manage these more complex structures, it is necessary to establish a peaceful co-existence between sometimes quite different business cultures. In many cases, banks will also have to form strategic alliances, outsourcing part of their activities; banks adopting this approach will have, at the same time, to keep the specific value added and to maintain adequate control and a relationship at arm’s length with their service providers.

#### **4.2 Non-interest income components**

Non-interest income components present great diversity particularly with regard to their volatility and, therefore, they can affect the risk profile of banks in different ways. A qualitative assessment of this aspect is included in the table provided in Annex I, based on the contribution of national supervisors. The figures in the table should be considered as indicative and are by no means a scientific measure.

The income deriving from proprietary trading activity (capital gains on financial operations) presents the highest volatility. Banks undertaking this activity face, in addition to market and credit

risks, organisational risks associated with the setting-up and management of proprietary trading desks for complex products.

The income from securities activity also presents a relatively high degree of volatility. This component includes not only income from shares but also income from participating interests and shares in affiliated undertakings. With regard to this last category of activity, banks are confronted with strategic and organisational risks. Banks have, in fact, to determine the required degree of diversification and to make the right choices for their participation, as well as to organise an adequate management structure.

Fees and commissions activities are, on the whole, considered to be less volatile than other non-interest income components. Some activities generating fees and commissions are regarded as bearing limited risks for banks. This applies more specifically to:

- foreign exchange transactions, probably reflecting in part the low prospects for the growth of this activity;
- advisory activities, although the associated reputation and operational risks are expected to increase;
- correspondent banking, the incidence of which will probably decrease further as a consequence of developments in payment systems;
- account administration, safe custody and, in general, most activities made on behalf of third parties; and
- securitisation and private banking, as they offer banks the possibility of transferring credit and market risks to other parties.

Other categories of activities generating fees and commissions are considered to present more risks for banks. These include derivatives trading activities and the provision of guarantees – which are regarded as potentially the most risky – underwriting activities, treasury management, real estate transactions, credit card business and payment transactions.

### **4.3 Supervisory issues**

The changes in the banks' income structure deriving from developments in the banking business also have implications for the activity of banking supervision in two respects: prudential regulation and current supervision.

With regard to *prudential regulation*, the main reference is to the capital adequacy regime. This regime, initially designed to cover credit risks on the basis of the solvency ratio, was later extended to cover market risks. As a subsequent step, the development of sophisticated risk management techniques by banks was taken into account by supervisors through the acceptance of internal risk management models to measure market risk for capital requirement purposes. The capital adequacy regime for credit risk is currently under review in the relevant institutional forums, notably the Basel Committee on Banking Supervision and the Banking Advisory Committee. One of the areas in which this process is being undertaken is the determination of specific capital requirements for categories of risks other than credit and market risk. This line of action is supported by the findings of this report, according to which the development of activities generating non-interest income determines the increased incidence of other categories of risks, including operational, reputation and strategic risks.

With regard to *current supervision*, the increased importance of activities generating non-interest income makes the work of banking supervisors to assess the risk profile of banks more complex. In general terms, banking supervisors have to ensure that all risks stemming from the changes in

the banks' income structure are properly controlled by banks. To that end, banking supervisors have already adapted or are in the process of adapting their monitoring process in order to take account of the developments in banking activities.

## ANNEX I

### Qualitative analysis of non-interest income: Summary table

On the basis of qualitative assessment of the various non-interest income activities, national responses are summarised in the following table:

#### Classification of non-interest income activities in terms of volume, profitability and risk profile

Degrees 1 to 5 (from higher to lower)

Non-interest income activities	Current situation			Future perspectives		
	Volume	Profitability	Risk	Volume	Profitability	Risk
<b>Fee based</b>						
1. Underwriting activities	3.3	2.9	2.9	3.5	3.5	3.2
2. Securitisation	4.8	4.3	4.2	4.2	3.8	4.6
3. Advisory (consulting) activities	4.0	3.2	4.3	2.8	2.8	3.8
4. Asset management, subdivided into:						
Treasury management	3.3	3.4	2.9	3.3	3.3	3.2
Private banking	2.9	2.7	4.1	2.3	2.5	4.2
5. Information and data processing services	4.6	4.7	4.7	3.5	4.2	4.7
6. Real estate and housing transactions	4.5	4.3	3.0	4.3	4.0	3.3
7. Correspondent banking	3.3	3.6	4.1	4.0	4.2	4.5
8. Credit cards	2.7	2.9	3.4	2.3	2.4	3.1
9. Provision of guarantees	2.6	2.6	2.2	2.7	2.8	2.1
10. Loans administration on behalf of other lenders	4.0	3.8	4.4	3.6	3.6	4.4
11. Securities transactions on behalf of third parties	2.5	2.1	4.1	2.6	2.8	4.3
12. Payment transactions	2.0	2.3	3.3	2.6	2.9	3.6
13. Account administration	2.9	3.4	4.9	3.0	3.5	4.8
14. Safe custody and administration of securities	3.0	3.0	4.6	3.7	3.5	4.7
15. FX transactions	3.0	2.7	4.0	3.7	3.7	4.1
16. Sale and purchase of coins and precious metals on behalf of third parties	5	4.8	4.8	4.8	3.8	4.5
17. Brokerage services in connection with insurance contracts	3.4	3.4	4.3	2.7	2.7	4.2
18. Brokerage services in connection with savings and loans	3.4	3.6	4.4	3.5	4.0	4.0
19. Derivatives trading activities	3.5	3.5	2.43	2.7	3.0	2.5
<b>Capital gains</b>						
1. Proprietary trading in securities	2.6	2.2	1.6	2.5	2.7	1.9
2. Proprietary trading in FX	2.7	2.6	1.6	3.1	3.1	1.8
3. Proprietary trading in derivatives	3.3	3.0	1.3	3.1	3.0	1.3
<b>Income from securities</b>						
1. Income from shares and other variable yield securities	3.6	3.6	1.8	3.6	2.9	1.9
2. Income from participating interests and shares in affiliated undertakings	2.9	2.8	2.2	2.9	2.8	2.4

The table includes the average mean value derived from responses from Austria, Belgium, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Portugal and Sweden. Numbers 1 to 5 correspond to a scaling order from a higher to a lower degree of importance. Volatility and risk were seen by most Member States as having the same features. Moreover, it was considered difficult to make a clear distinction between profitability and volume. The table was completed on a "best effort" basis.

Source: Supervisory authorities represented in the Banking Supervisory Committee.

## ANNEX 2

### Introduction to the tables and charts

Unless otherwise indicated, the following charts and tables have been produced on the basis of contributions from national authorities (EU central banks and supervisory authorities). The data were provided on an unconsolidated basis including all credit institutions incorporated in the reporting country together with branches from third countries and excluding foreign branches from EU countries (to avoid double-counting) and foreign subsidiaries of credit institutions. Although the layout and definitions of the Banking Accounts Directive have been applied for the breakdown of the non-interest income, the set of data as a whole cannot be regarded as having been collected on the basis of a harmonised statistical framework. Therefore, data should be taken as indicative only and should be regarded with due caution. **Given this general caveat, footnotes in the tables and charts indicating peculiarities in the data series have been kept to a minimum.**

Owing to national differences and differences in data availability, there are smaller or greater inconsistencies between data in a number of cases. These inconsistencies may be the result of flawed comparability over time (changes in reporting frameworks and data availability; in the case of Ireland and the Netherlands, for example, data refer to a sample of banks), across countries (different definitions of reporting populations, for example the well-known differences between the definitions of a “credit institution”) or a result of differences within the samples, which may include or exclude some banks over a period. The data are, therefore, not fully comparable with those of EU countries which only included banks in the sample under examination. In addition, for at least one country it was reported that, for banks with a financial year not ending on 31 December, figures in that given year were not readjusted on an annual basis. The caveat also applies notably to the EU or euro aggregates, which are given for indicative purposes in a number of cases.

Tables 1 to 5 have been extracted from the previous report of the BSC on the possible effects of EMU on the EU banking systems in the medium to long term (February 1999). Tables 1 and 2 contain calculations on the percentage change in relative importance over a given time period (1995-97). The procedure followed for calculating the percentage change in relative importance included the following steps; first, the total of several items (e.g. in Table 1 assets of investment funds, credit institutions and insurance and pension funds) was calculated and the relative share of every single item in the total was derived for both observation periods (1995 and 1997). However, *this step is not included in the table*. As a last step, percentage changes in relative importance with reference to the two observation periods were calculated. These percentage changes are mentioned in Tables 1 and 2, but cannot be deducted directly from the figures mentioned in the first part of the tables.

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## Explanations related to the tables and charts

### Abbreviations used in the tables

The following abbreviations for the EU countries are used in the tables:

BE	Belgium
DK	Denmark
DE	Germany
GR	Greece
ES	Spain
FR	France
IE	Ireland
IT	Italy
LU	Luxembourg
NL	Netherlands
AT	Austria
PT	Portugal
FI	Finland
SE	Sweden
UK	United Kingdom

Blank field/country not mentioned in the table: data are not available.

### Weightings and averages

Most of the tables contain averages. These averages are presented for illustrative purposes only. Tables 8 to 17, 19 to 27 and 30 have been compiled on the basis of information submitted by the national authorities. Weighted averages – for the EU and euro area – (Tables 8-11, 17, 19 to 25) have been calculated for those years for which data on Member States were available (mostly 1994-98 or 1995-98) by multiplying the respective country data by a weight representing the country's GDP share in EU GDP for the year 1998. In order to overcome the problem of data availability for the earlier period, the OECD bank profitability database is used for the calculation of aggregate (EU and euro area) indicators for the banks' income structure (Table 18). Moreover, the OECD data basis was employed for the calculation of EU and euro averages for the correlation coefficient (correlation of interest and non-interest income (Table 28) and the coefficient of variation of net interest income and non-interest income (Tables 29A to 29D). GDP weights were chosen as being the standard approach for weighting financial quantities such as monetary aggregates and may be inaccurate where financial sectors such as that of Luxembourg are larger than GDP. However, this "error" in terms of measuring the relative importance of Luxembourg as the financial sector using GDP does not lead to any distortion of the EU average

The following weights have been used for EU averages:

AT	BE	DE	DK	ES	FI	FR	GR	IE	IT	LU	NL	PT	SE	UK
2.48	2.94	25.33	2.05	6.86	1.51	17.10	1.43	1.00	13.96	0.22	4.61	1.29	2.77	16.44

For the euro area the following weights have been used:

AT	BE	DE	ES	FI	FR	IE	IT	LU	NL	PT
3.21	3.81	32.77	8.87	1.96	22.13	1.29	18.05	0.28	5.96	1.67

For the calculation of the EU and euro area aggregate indicators for the period 1989-95 (Table I8), EU and euro area weighted averages are calculated by making an allocation of the weight of Ireland, for which the OECD database does not provide relevant data, to the rest of the EU and euro area countries in a manner proportionate to their weightings. Moreover, the euro area and EU weighted averages for the years 1993 and 1994 in Tables 8 to 11 are calculated by using the 1995 data for three countries (Finland, Ireland and the United Kingdom) as proxies for the years 1993 and 1994. ROE and ROA ratios and the respective weighted averages include **profits before tax**. The ROE and ROA are calculated by country by dividing aggregate absolute figures for profit before tax by aggregate absolute values for total equity and total assets respectively. Alternatively, in the cases where weighted ROE and ROA ratios were not available, non-weighted ratios were requested as an alternative; this is, at least, the case for the United Kingdom, whereas for Germany the ROE ratio was calculated on the basis of yearly averages of equity (Return On Average Equity). The EU12 average in Table 30 is unweighted.

### **Measurement of volatility**

The coefficient of variation (standard deviation/mean)\*100 was calculated as a measure of volatility appropriate for comparisons across data sets in Tables 29A-29D and 30. With regard to Tables 29A to 29D, the volatility of interest and non-interest income levels (both expressed in ratio form, as a percentage of average balance sheet assets on the basis of OECD data) was calculated by the coefficient of variation, which is the ratio of the standard deviation to the mean multiplied by 100. However, a different methodology was followed for the calculation of the coefficient of variation of non-interest income and its components (Table 30). In particular, the values in domestic currencies concerning non-interest income and its components were converted into ECU by using monthly average ECU values for the year concerned. The short period (1993-98) for which analytical data from national sources were available and in which low levels of inflation prevailed across most of the EU countries allows for the conversion of data in national currencies into ECU and the calculation of the EU average. The use of values instead of ratios has the advantage that the result is not affected by the changes in the denominator.

The following ECU values have been used for the conversion of national currencies:

	1990	1991	1992	1993	1994	1995	1996	1997	1998
<b>BEF</b>	42.423	42.2224	41.6062	40.4672	39.662	38.5473	39.2998	40.5291	40.623
<b>DKK</b>	7.8561	7.9082	7.8119	7.5916	7.5435	7.3271	7.3598	7.4829	7.4998
<b>DEM</b>	2.0519	2.0507	2.021	1.9368	1.9248	1.8736	1.9096	1.9642	1.9692
<b>GRD</b>	201.427	225.2153	246.8861	268.4125	287.9386	303.0107	305.5692	309.3311	330.7594
<b>ESP</b>	129.4279	128.4608	132.4428	148.9101	158.9029	162.9971	160.7403	165.8837	167.1915
<b>FRF</b>	6.9141	6.9733	6.85	6.633	6.5835	6.5247	6.4932	6.6121	6.6017
<b>IEP</b>	0.7677	0.7678	0.7609	0.7996	0.7935	0.8156	0.7934	0.7475	0.7862
<b>ITL</b>	1521.876	1533.261	1594.286	1840.328	1913.946	2131.498	1958.801	1929.629	1943.722
<b>LUF</b>	42.423	42.2224	41.6062	40.4672	39.662	38.5473	39.2998	40.5291	40.623
<b>NLG</b>	2.3119	2.3109	2.2755	2.1757	2.1585	2.0987	2.1398	2.2106	2.2198
<b>ATS</b>	14.4387	14.4305	14.222	13.6266	13.5413	13.1813	13.4351	13.8226	13.8552
<b>PTE</b>	181.1067	178.6612	174.679	188.1248	196.905	196.1154	195.7731	198.5586	201.7052
<b>FIM</b>	4.8551	5.0042	5.802	6.6973	6.1908	5.7092	5.8301	5.8808	5.9827
<b>SEK</b>	7.52	7.4798	7.5299	9.1146	9.1579	9.3337	8.5156	8.6552	8.9085
<b>GBP</b>	0.7141	0.7011	0.737	0.7805	0.7756	0.829	0.8137	0.6926	0.6762

### ***Spearman's rank correlation test***

Spearman's rank correlation coefficient was calculated for two sets of variables. First, for testing a possible correlation between the ranked values of the ratio of non-interest income to operating income and ranked ROE values and, second, for testing a possible correlation between the ranked values of non-interest income to operating income and ranked values of the ratio of operating cost to operating income for the EU banks (Tables 26 and 27). Spearman's rank correlation test provides a statistical measurement of the correlation between the two individual data sub-sets ranked. Illustration of the rank correlation test is provided in many statistical textbooks.

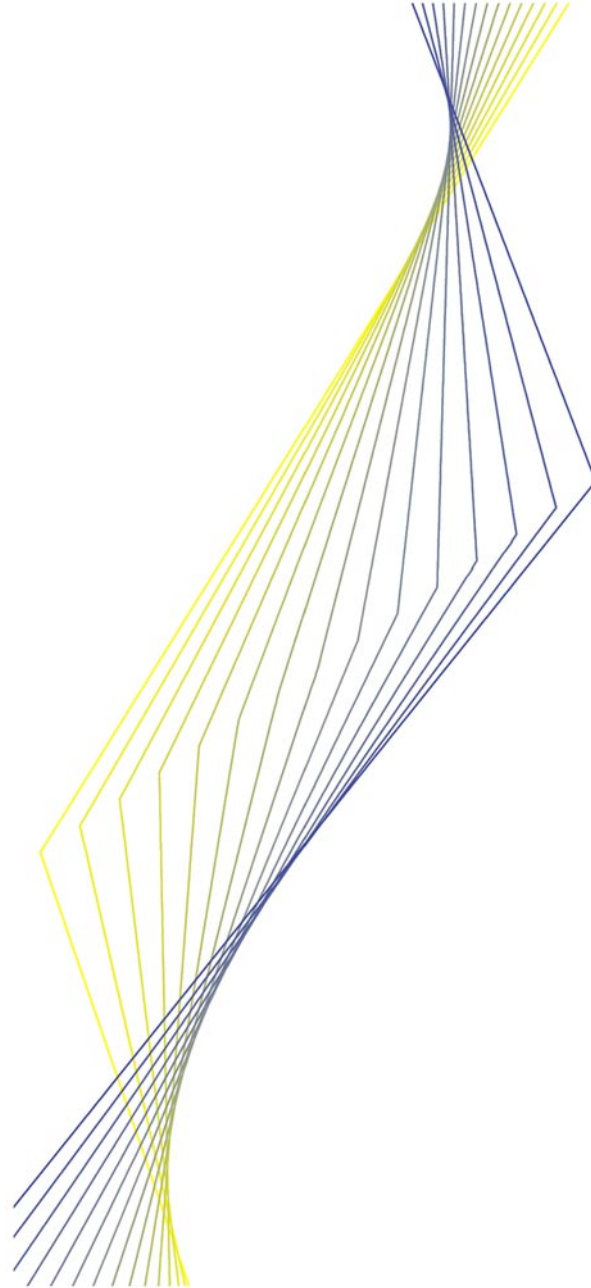
Spearman's correlation test was preferred because it provides a measurement of correlation for ranked variables, thus diminishing the effect of "extreme" values on the correlation measurement and, to the extent that differences in the variables as a result of the use of non-harmonised databases do not affect the ranking of countries, it could provide a better measurement of correlation. Against this background, since the rank order of a set of variables is used for measuring their correlation, any discrepancies arising from data accuracy or differences in the method of calculations do not affect the correlation measurement if they do not cause any change in the ranking.







EUROPEAN CENTRAL BANK



**Tables**





**Table I****The relative importance of financial intermediaries****Assets of credit institutions, investment funds' assets and insurance companies' and pension funds' assets under management***(expressed as a percentage of GDP (benchmark years 1997 and 1995)**sorted by the assets of credit institutions as a percentage of GDP in 1997)*

	1997 Absolute value as a % of GDP			1995 Absolute value as a % of GDP			% change in relative importance 1995-97		
	Investment funds	Insurance companies & pension funds	Credit institutions	Investment funds	Insurance companies & pension funds	Credit institutions	Investment funds	Insurance companies & pension funds	Credit institutions
UK			328	16		296			
IE	70		299	37	26	195			
BE	32	31	294	24	26	279			
DE	25	37	256	16	32	223	30	-2	-2
FR		45	245	33	40	224			
AT	23	26	238	14	23	231	47	6	-4
NL	19	146	227	16	124	194	1	0	0
DK	8	69	220	5	66	203	48	-4	0
PT	26	31	220	17	23	184	24	9	-3
SE	21	104	213	11	86	179	54	-1	-3
ES	35	22	183	18	18	183	77	11	-9
IT	19	19	155	7	17	150	137	1	-7
FI	3	42	113	1	38	122	225	12	-6
GR	23		102	10	12	96			
LU	2771		3696	2072	45	3604			

*Source: ECB publication entitled "Possible effects of EMU on the EU banking systems in the medium to long term", February 1999.**Note: For the calculation of the percentage change in relative importance see Annex 2 (Introduction to the tables and charts).*

**Table 2****The relative importance of different financial instruments:***(expressed as a percentage of GDP (benchmark years 1997 and 1995)**sorted by banks' loans as a percentage of GDP in 1997)*

	1997						1995						% change in relative importance 1995-97					
	CPs <sup>1)</sup>	CDs	Equities	Bonds	Deposits	Loans	CPs	CDs	Equities	Bonds	Deposits	Loans	CPs	CDs	Equities	Bonds	Deposits	Loans
UK		10			223	220		6			216	206						
IE	6	3	76	34	122	175	4		40	43	93	115	13		34	-44	-7	8
NL	1	1	187	97	93	156	1	1	103	80	90	138	-21	-21	40	-7	-20	-13
DE	1	0	60	92	101	144	0	0	43	85	99	134	15	700	26	-1	-7	-2
DK			72	186	154	140			40	193	148	130			67	-11	-4	0
SE	2	12	124	96	53	122	1	9	70	97	47	118	76	11	48	-17	-5	-13
AT			18	65	99	121			13	60	101	118			29	4	-5	-1
BE	3	2	164	159	111	97	2	1	132	168	98	99	54	147	16	-11	5	-9
ES	1	0	51	60	74	88	1	0	31	55	79	81	-36		50	-1	-16	-3
PT	3	2	50	67	116	83	3	1	47	63	113	67	-9	82	-3	-3	-6	13
FR					67	81	2	19	32	54	63	83						
IT	1	11	107	122	38	67	1	19	83	116	38	65	-6	-45	20	-2	-6	-5
FI	1	14	65	46	49	58	1	13	35	42	56	66	-12	-2	71	0	-20	-20
GR	0	0	30	42	76	36	0	0	15	64	69	33			95	-36	8	8
LU			17	833	1389	692			11	682	1418	681			46	16	-7	-3

Source: ECB publication entitled "Possible effects of EMU on the EU banking systems in the medium to long term", February 1999.

1) CPs is the acronym for commercial paper and CDs for certificates of deposits.

2) For the calculation of the percentage change in relative importance see Annex 2 (Introduction to the tables and charts).

**Table 3**

**The relative importance of different categories of bonds:  
government bonds, credit institutions' bonds, private non-financial enterprises' bonds**

(expressed as a percentage of GDP (1997 and 1995)  
sorted by government bonds as a percentage of GDP in 1997)

	1997			1995			% change in relative importance 1995-97			Relative importance of private non-financial enterprises' bonds to total bonds in 1997
	Private non-financial enterprises' bonds	Credit institutions' bonds	Government bonds	Private non-financial enterprises' bonds	Credit institutions' bonds	Government bonds	Private non-financial enterprises' bonds	Credit institutions' bonds	Government bonds	
BE	10.1	38.3	111.1	7.8	47.1	112.7	35.7	-14.4	3.5	6.3
IT	1.6	19.4	100.4	1.6	12.2	101.9	-4.4	51.6	-6.1	1.3
DK	11.0	95.0	62.0	9.0	93.0	67.0	22.9	2.8	-6.9	6.5
NL		43.1	53.4		26.2	54.2		37.0	-17.9	
ES	2.7	4.6	52.9	3.4	4.2	47.4	-27.3	0.5	1.9	4.4
SE	3.7	38.6	46.6	3.5	51.8	41.4	16.0	-18.9	22.4	4.1
PT	7.0	10.0	40.0	5.0	5.0	45.0	35.1	93.0	-14.2	12.3
GR	3.3	0.4	38.3	0.9	4.2	59.1	435.2	-85.0	-0.8	7.8
DE	0.1	54.6	37.7	0.1	46.4	36.5	40.0	5.7	-7.4	0.1
FI	3.8	7.1	35.6	4.9	10.0	27.5	-29.3	-35.5	18.2	8.2
IE	0.0	1.6	32.2	0.5	0.4	42.4	-97.4	414.1	-2.8	0.0
AT	2.8	31.2	30.6	3.3	29.2	27.5	-21.6	-0.9	3.5	4.3
LU	115.7	307.6	1.1	87.2	260.2	1.2	3.5	-7.7	7.6	27.3

Source: ECB publication entitled "Possible effects of EMU on the EU banking systems in the medium to long term", February 1999.  
Note: For the calculation of the percentage change in relative importance see Annex 2 (Introduction to the tables and charts).

**Table 4**  
**Share of UCITS controlled by credit institutions**

(percentage points)

	1992	1993	1994	1995	1996	1997	% change 1992-97	% change 1995-96	% change 1996-97
AT	100	100	100	100	100	100	0	0	0
PT	100	99	99	100	100	100	0	0	0
ES	92	92	93	92	93	93	2	1	1
LU <sup>1)</sup>	90	90	90	90	90	90			
GR					89	85			-4
SE			86	85	84	85		-1	1
IT	57	63	65	66	79	84	47	20	6
FI	67	53	51	55	62	81	20	12	31
NL	55	55	53	52	52	50	-9	0	-4

Source: ECB publication entitled "Possible effects of EMU on the EU banking systems in the medium to long term", February 1999.  
 LU<sup>1)</sup>: share is higher than 90% for all five years.

**Table 5**  
**Credit institutions' loans to non-banks as a percentage of GDP**

	1980	1985	1990	1995	1996	1997	% change 1985-95	% change 1995-96	% change 1996-97
UK		147	201	206	204	220	40	-1	8
IE	78	75	87	115	132	175	54	15	32
NL	71	92	126	138	146	156	50	6	7
DE	106	117	131	134	140	144	14	5	3
DK	109	111	153	130	134	140	17	3	4
SE		93	150	118	118	122	27	0	4
AT	84	101	114	118	119	121	17	1	2
BE	81	81	92	99	98	97	23	-1	-1
ES		72	80	81	83	88	13	2	6
PT	77	73	52	67	72	83	-8	7	15
FR	31	76	87	83	80	81	9	-4	2
IT	51	48	62	65	65	67	37	0	3
FI	49	59	88	66	63	58	12	-5	-8
GR	39	39	36	33	34	36	-16	6	4
LU	937	1,080	865	681	676	692	-37	-1	2
EU weighted average		96	117	117	118	124	21	1	5

Source: ECB publication entitled "Possible effects of EMU on the EU banking systems in the medium to long term", February 1999.

**Table 6****Geographical distribution of global OTC derivatives market activity***(average daily turnover in USD billions)*

Country	April 1998		April 1995	
	Notional amounts	Percentage share	Notional amounts	Percentage share
United Kingdom	591	35	351	30
United States	294	17	164	14
France	99	6	55	5
Japan	123	7	139	12
Germany	87	5	56	5
Switzerland	63	4	47	4
Singapore	91	5	79	7
Other countries	336	20	271	23
<b>TOTAL</b>	<b>1684</b>	<b>100</b>	<b>1162</b>	<b>100</b>

*Source: BIS publication entitled "Central Bank Survey of FX and derivatives market activity 1998", Basel, May 1999.***Table 7****Geographical distribution of global traditional foreign exchange market activity***(average daily turnover of notional amounts in USD billions)*

Country	April 1998		April 1995		April 1989	
	Amount	Percentage share	Amount	Percentage share	Amount	Percentage share
United Kingdom	637	32	464	30	184	26
United States	351	18	244	16	115	16
France	72	4	58	4	23	3
Japan	149	8	161	10	111	15
Germany	94	5	76	5		
Netherlands	41	2	26	2	13	2
Switzerland	82	4	87	6	56	8
Singapore	139	7	105	7	55	8
Other countries	417	20	351	20	161	22
<b>TOTAL</b>	<b>1982</b>	<b>100</b>	<b>1572</b>	<b>100</b>	<b>718</b>	<b>100</b>

*Source: BIS publication entitled "Central Bank Survey of FX and derivatives market activity 1998", Basel, May 1999.*

**Table 8****Relative importance of the components of non-interest income***Net income from fees and commissions expressed as a percentage of non-interest income*

	1993	1994	1995	1996	1997	1998	average 1993-98
UK			71	80	80	72	76
IE			86	76	71	68	76
NL	58	66	60	60	58	59	60
ES	48	77	57	52	55	59	58
DK	34	213	38	48	56	56	74
GR	60	62	62	62	57	53	59
DE	60	65	62	61	58	52	60
IT	37	64	44	39	46	50	47
LU	45	68	52	55	54	50	54
FI			57	51	52	48	52
FR	53	66	59	57	53	47	56
AT	41	46	44	44	44	42	44
BE	30	40	32	32	36	36	34
PT	39	44	36	29	35	35	36
SE	60	58	63	46	49	35	52
EURO weighted	51	64	55	53	53	50	55
EU weighted	55	68	58	57	57	54	58

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

*Notes*

- 1) as a working hypothesis for the calculation of the EURO and EU weighted averages, the 1995 data for the UK, IE and FI are used as proxies for the years 1993 and 1994.
- 2) 1993-1998 averages for the UK, IE and FI refer to the 1995-1998 period for which data are available.
- 3) the average for DK has been influenced by the "extreme" value of the ratio for 1994 (a value of more than 100% indicates that there was a negative contribution (value) by another component of non-interest income (see table 9). With the exclusion of the 1994 figure, the average for the rest of the years decreases to 46 percent.

**Table 9****Relative importance of the components of non-interest income***Net profit (loss) on financial operations expressed as a percentage of non-interest income*

	1993	1994	1995	1996	1997	1998	average 1993-98
BE	44	26	40	37	39	44	39
FR	45	30	36	39	39	43	39
PT	40	28	28	39	34	34	34
GR	28	24	19	21	29	33	26
IT	45	0	23	29	21	17	22
LU	34	3	27	27	19	16	21
ES	34	-21	14	25	22	16	15
NL	18	13	20	20	18	16	17
FI			11	24	20	15	17
AT	18	12	13	12	13	12	13
SE	19	7	8	32	9	11	15
UK			15	13	12	11	13
DE	15	1	10	9	9	10	9
IE			10	8	8	8	8
DK	57	-151	38	29	14	6	-1
EURO weighted	31	8	21	23	21	21	21
EU weighted	28	6	20	22	19	19	19

*Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.**Notes*

- 1) *as a working hypothesis for the calculation of the EURO and EU weighted averages the 1995 data for the UK, IE and FI are used as proxies for the years 1993 and 1994.*
- 2) *1993-1998 averages for the UK, IE and FI refer to the 1995-1998 period for which data are available.*
- 3) *extreme values for DK and, to a lesser extent, for ES for 1994 have affected the 1993-1998 average for these countries. Negative values denote losses in financial operations.*

**Table 10****Relative importance of the components of non-interest income***Income from securities expressed as a percentage of non-interest income*

	1993	1994	1995	1996	1997	1998	average 1993-98
SE	5	4	16	12	25	35	16
DE	20	30	25	27	29	31	27
DK	3	9	18	18	24	25	16
AT	16	16	16	16	19	25	18
ES	16	37	26	21	21	24	24
FI			6	6	7	19	10
PT	6	5	15	12	12	16	11
NL	5	6	6	5	10	11	7
IE			-3	10	13	11	8
IT	2	6	5	5	7	10	6
FR	2	4	5	3	8	10	5
BE	12	15	13	17	11	9	13
LU	13	15	12	7	9	7	11
GR	6	6	9	8	6	6	7
UK			2	2	1	1	2
EURO weighted	10	17	14	14	16	19	15
EU weighted	9	14	12	12	14	17	13

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

*Notes*

- 1) as a working hypothesis for the calculation of the EURO and EU weighted averages the 1995 data for the UK, IE and FI are used as proxies for the years 1993 and 1994.
- 2) 1993-1998 averages for the UK, IE and FI refer to the 1995-1998 period for which data are available.
- 3) "extreme" values for IE in 1995 have affected the 1993-1998 average for this country.



**Table 11****Relative importance of the components of non-interest income***Other operating income expressed as a percentage of non-interest income*

	1993	1994	1995	1996	1997	1998	average 1993-98
LU	9	15	8	11	18	27	15
IT	16	31	29	27	27	23	25
AT	25	27	28	27	24	22	25
SE	16	31	13	10	16	19	17
FI			26	18	20	19	21
UK			11	5	8	15	10
PT	15	22	21	20	19	15	19
NL	18	15	15	15	13	15	15
IE			7	6	8	13	8
DK	6	29	6	6	6	13	11
BE	14	19	16	13	14	11	14
GR	7	7	10	9	8	8	8
DE	4	4	3	3	4	7	4
ES	2	7	3	2	2	2	3
EURO weighted	8	11	10	9	9	9	9
EU weighted	8	12	10	8	9	11	10

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

*Notes*

- 1) as a working hypothesis for the calculation of the EURO and EU weighted averages the 1995 data for the UK, IE and FI are used as proxies for the years 1993 and 1994.
- 2) other operating income was not reported by FR for the period 1993-97 and the amount reported for 1998 was negligible as a percentage of non-interest income. Consequently, a zero value has been taken into account for FR when computing the Euro and EU weighted averages.
- 3) 1993-1998 averages for the UK, IE and FI refer to the 1995-1998 period for which data are available.

**Table 12****Relative importance of the main sub-components of net income from fees and commissions***Commissions from FX transactions expressed as a percentage of net income from fees and commissions*

	1993	1994	1995	1996	1997	1998	average 1993-98
GR	15	11	12	12	13	26	15
AT			14	13	13	12	13
NL	12	12	13	11	8	5	10
IT	4	4	5	4	4	3	4
ES	3	3	3	2	2	1	2
FI			1	1	1	1	1
FR	1	1	1	1	1	1	1
PT	1	2	1	0	0	0	1

*Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.**Note: Average data refer to the period for which data are available (e.g. 1995-98 for FI).***Table 13****Relative importance of the main sub-components of net income from fees and commissions***Commissions charged for guarantees expressed as a percentage of net income from fees and commissions*

	1993	1994	1995	1996	1997	1998	average 1993-98
PT	22	23	23	23	17	14	20
BE	17	17	18	16	14	11	15
DK	17	14	14	14	15		15
GR	9	7	8	7	8	10	8
AT	14	13	14	13	10	10	12
ES	11	11	12	11	9	8	10
FI			15	10	8	7	10
FR	6	6	6	6	5	5	6
IT	7	7	8	7	6	4	7

*Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.**Note: Average data refer to the period for which data are available (e.g. 1995-98 for FI and 1993-97 for DK).*

**Table 14****Relative importance of the main sub-components of net income from fees and commissions***Commissions charged for securities transactions expressed as a percentage of net income from fees and commissions*

	1993	1994	1995	1996	1997	1998	average 1993-98
BE	44	47	41	44	46	50	45
NL	22	22	22	29	33	38	28
AT	26	25	22	25	29	32	26
PT	21	22	23	23	23	27	23
GR	25	34	29	27	27	26	28
FR	15	14	11	12	14	16	14
ES	9	9	9	9	13	10	10
IT	2	2	2	2	3	6	3
FI			3	3	2	3	3

*Note: Average data refer to the period for which data are available (e.g. 1995-98 for FI).***Table 15****Relative importance of the main sub-components of net income from fees and commissions***Commissions charged for payment transactions expressed as a percentage of net income from fees and commissions*

	1993	1994	1995	1996	1997	1998	average 1993-98
ES	67	61	65	63	54	50	60
FI			28	26	29	32	29
PT	31	30	27	31	30	23	29
AT			31	29	28	28	29
NL	34	32	32	28	24	25	29
FR	19	19	23	23	22	22	21
GR	21	17	20	22	19	23	20
BE	27	25	27	22	17	14	22
IT	15	11	13	14	13	11	13

*Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.**Note: Average data refer to the period for which data are available (e.g. 1995-98 for FI and AT).*

**Table 16****Relative importance of the main sub-components of net income from fees and commissions***Commissions charged for safe custody and administration of securities expressed as a percentage of net income from fees and commissions*

	1993	1994	1995	1996	1997	1998	Average 1993-98
BE	9	10	11	14	14	13	12
FR	20	18	16	14	10	10	15
NL	5	6	5	5	7	6	6
FI			6	6	7	10	7
ES	5	6	5	6	6	6	6
IT	5	4	4	4	4	4	4
PT	1	2	2	2	3	4	2

*Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.**Note: Average data refer to the period for which data are available (e.g. 1995-98 for FI).***Table 17****Summary table****Non-interest income mix prevailing in the EU countries in terms of the relative importance of its main components***(percentage points)*

	1998				AVERAGE 1993-98			
	Fees and commissions	Income from securities	Net profit on Financial operations	Other operating income	Fees and commissions	Income from securities	Net profit on Financial operations	Other operating income
BE	36	9	44	11	34	13	39	14
DK	56	25	6	13	74	16	-1	11
DE	52	31	10	7	60	27	9	4
GR	53	6	33	8	59	7	26	8
ES	59	24	16	2	58	24	15	3
FR	47	10	43	0	56	5	39	0
IE	68	11	8	13	76	8	8	8
IT	50	10	17	23	47	6	22	25
LU	50	7	16	27	54	11	21	15
NL	59	11	16	15	60	7	17	15
AT	42	25	12	22	44	18	13	25
PT	35	16	34	15	36	11	34	19
FI	48	19	15	19	52	10	17	21
SE	35	35	11	19	52	16	15	17
UK	72	1	11	15	76	2	13	10
EURO weighted	50	19	21	9	55	15	21	9
EU weighted	54	17	19	11	58	13	19	10

*Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.**Note: For the calculation of the EU and euro area averages and for 1993-97 averages across countries see notes on tables 8 to 11.*

**Table 18****Aggregate indicators for the euro and the EU area***Period 1989-95 (percentage points)*

<b>Net Non-interest income / gross income</b>							
	1989	1990	1991	1992	1993	1994	1995
EURO weighted	23.1	24.2	24.4	25.5	29.7	25.7	28.7
EU weighted	26.1	26.7	27.3	28.5	32.9	28.5	31.6
<b>Net interest income / assets (end of year)</b>							
	1989	1990	1991	1992	1993	1994	1995
EURO weighted	2.20	2.18	2.18	2.13	2.02	2.00	1.93
EU weighted	2.31	2.29	2.33	2.20	2.13	2.10	2.01
<b>Net Non-interest income / assets (end of year)</b>							
	1989	1990	1991	1992	1993	1994	1995
EURO weighted	0.66	0.69	0.70	0.71	0.85	0.68	0.74
EU weighted	0.86	0.88	0.93	0.92	1.10	0.87	0.94
<b>Gross income / assets (end of year)</b>							
	1989	1990	1991	1992	1993	1994	1995
EURO weighted	2.86	2.87	2.87	2.83	2.88	2.68	2.67
EU weighted	3.17	3.18	3.27	3.12	3.23	2.97	2.95
<b>Return on equity (before tax)</b>							
	1989	1990	1991	1992	1993	1994	1995
EURO weighted	12.13	11.23	11.23	8.66	8.49	6.66	8.45
EU weighted	10.39	11.33	12.14	8.28	10.36	10.45	12.45

*Source: OECD Bank Profitability**Note*

- 1) The following sectors per country are included in the OECD sample for the calculations of the above ratios: AT: All banks, BE: All banks, DE: All banks, DK: Commercial banks and savings banks, ES: All banks, FI: All banks, FR: All banks, GR: Commercial banks, IT: All banks, LU: Commercial banks, NL: All banks, PT: Commercial banks, SE: Commercial banks, UK: Commercial banks.
- 2) No data for IE existed for the period concerned. EU and euro area weighted averages are calculated by making an allocation of the weight of IE to the rest of the EU and euro area countries in a manner proportionate to their weightings.

**Table 19****Non-interest income expressed as a percentage of operating income**

	1980	1985	1990	1995	1996	1997	1998	%change 1996/95	%change 1997/96	%change 1998/97
LU	18	20	35	34	38	43	55	11	14	27
SE		46	26	30	35	41	53	16	17	29
FR				34	38	45	52	11	19	16
AT			42	39	41	43	47	5	5	10
IT				31	35	39	46	15	11	18
GR				45	47	45	45	4	-5	1
BE			29	32	34	37	43	7	9	15
FI				35	43	40	42	22	-5	4
PT	59	57	20	27	35	35	41	26	1	17
NL	26	26	29	33	37	40	40	9	8	2
IE	23	17	27	31	36	37	40	15	5	7
UK			39	43	39	39	40	-8	-1	2
DK				28	31	30	37	8	-1	23
ES	13	14	17	27	31	33	36	13	8	8
DE				25	25	29	33	3	13	14
EURO weighted				30	32	36	41	10	12	14
EU weighted				32	34	37	41	6	9	12

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

**Table 20****Non-interest income expressed as a percentage of total assets**

	1980	1985	1990	1995	1996	1997	1998	%change 1996/95	%change 1997/96	%change 1998/97
GR				1.61	1.71	1.71	1.76	6	0	3
IT				1.18	1.32	1.38	1.75	12	5	27
IE	1.20	0.87	1.43	1.48	1.78	1.43	1.69	20	-20	18
FI				1.02	1.34	1.18	1.39	31	-12	18
UK			1.88	1.54	1.40	1.32	1.39	-9	-6	5
SE		1.36	0.55	0.86	0.92	0.91	1.26	7	-1	38
PT	1.93	1.63	1.03	0.86	1.03	1.05	1.23	20	2	17
AT			1.14	1.06	1.12	1.12	1.18	6	0	5
ES	0.61	0.63	0.77	0.98	1.07	1.14	1.17	9	7	3
DK				1.13	1.07	0.93	1.17	-6	-13	26
NL	0.74	0.75	0.66	0.88	1.02	1.06	1.06	15	5	0
FR				0.67	0.72	0.83	1.02	7	15	23
BE		0.50	0.53	0.58	0.63	0.66	0.87	9	4	32
LU	0.17	0.28	0.41	0.36	0.41	0.49	0.72	14	20	49
DE				0.58	0.58	0.65	0.71	-1	11	11
EURO weighted				0.80	0.87	0.93	1.09	8	7	17
EU weighted				0.94	0.98	1.00	1.15	3	3	15

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

**Table 2 I****Net interest income expressed as a percentage of total assets**

	1980	1985	1990	1995	1996	1997	1998	%change 1996/95	%change 1997/96	%change 1998/97
IE	3.96	4.19	3.92	3.31	3.20	2.39	2.52	-3	-25	5
UK			2.98	2.06	2.17	2.09	2.13	5	-4	2
GR				1.94	1.90	2.10	2.12	-2	11	1
ES	4.18	3.87	3.75	2.60	2.42	2.28	2.09	-7	-6	-8
IT				2.66	2.44	2.17	2.06	-8	-11	-5
DK				2.85	2.41	2.13	1.95	-15	-11	-9
FI	2.74	2.26	1.88	1.80	1.81	1.78	1.92	0	-1	8
PT	1.30	1.23	4.18	2.29	1.97	1.91	1.78	-14	-3	-7
NL	2.12	2.17	1.63	1.76	1.77	1.63	1.57	1	-8	-3
DE	1.64	2.00	1.55	1.78	1.71	1.60	1.47	-4	-7	-8
AT			1.58	1.69	1.64	1.50	1.32	-3	-9	-12
BE		1.62	1.31	1.23	1.21	1.10	1.16	-2	-9	5
SE		1.60	1.56	2.00	1.70	1.32	1.13	-15	-22	-15
FR				1.31	1.20	1.03	0.94	-8	-14	-8
LU	0.76	1.15	0.76	0.69	0.67	0.63	0.59	-4	-5	-7
EURO weighted				1.91	1.80	1.63	1.53	-6	-9	-6
EU weighted				1.96	1.87	1.72	1.63	-4	-8	-5

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.



**Table 22****Operating income expressed as a percentage of total assets**

	1980	1985	1990	1995	1996	1997	1998	%change 1996/95	%change 1997/96	%change 1998/97
IE	5.16	5.06	5.36	4.79	4.98	3.82	4.21	4	-23	10
GR				3.55	3.61	3.81	3.88	2	6	2
IT				3.84	3.76	3.55	3.81	-2	-6	7
UK			4.86	3.60	3.57	3.41	3.52	-1	-4	3
FI				2.89	3.15	2.99	3.31	9	-5	11
ES	4.79	4.50	4.52	3.58	3.49	3.42	3.26	-2	-2	-4
DK				3.98	3.47	3.07	3.12	-13	-12	2
PT	3.27	2.88	5.26	3.18	3.05	2.99	3.00	-4	-2	0
NL	2.86	2.91	2.29	2.64	2.78	2.69	2.63	5	-3	-2
AT			2.72	2.75	2.76	2.62	2.51	0	-5	-4
SE		2.96	2.11	2.86	2.62	2.23	2.38	-8	-15	7
DE				2.37	2.29	2.24	2.18	-3	-2	-3
BE		2.11	1.84	1.81	1.84	1.76	2.03	2	-4	15
FR				1.99	1.92	1.86	1.96	-3	-3	5
LU	0.93	1.44	1.16	1.05	1.07	1.12	1.32	2	5	17
EURO weighted				2.72	2.65	2.57	2.49	-2	-3	-3
EU weighted				2.90	2.85	2.72	2.79	-2	-4	2

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

**Table 23****Return on equity (weighted)***(percentage points)*

	1980	1985	1990	1995	1996	1997	1998
IE	21.3	13.8	26.8	27.3	28.7	28.4	32.6
FI	8.4	9.3	6.1	-8.3	13.8	22.2	27.4
UK			5.1	14.3	26.5	25.6	25.8
LU	16.6	28.9	22.4	17.8	18.0	19.7	23.1
NL	31.0	29.0	18.0	20.8	22.0	19.3	22.0
DE				14.1	13.3	12.8	19.3
ES	12.4	17.7	23.1	15.2	16.1	17.1	17.4
GR				20.2	15.9	16.3	17.2
SE		29.3	9.4	16.0	19.8	12.1	15.6
DK				20.0	17.1	15.8	15.5
BE		13.3	11.0	13.1	15.3	15.1	14.7
IT				6.3	8.3	5.9	13.3
PT	15.5	11.7	13.0	8.2	8.5	10.4	10.0
FR				3.2	4.3	7.4	9.6
AT			10.1	9.2	9.1	8.9	8.4
EURO weighted				10.2	11.2	11.4	15.8
EU weighted				11.4	14.2	13.9	17.4

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

Notes:

- 1) ROE ratios include profits before tax.
- 2) For DE, ROE was calculated with respect to the yearly averages of equity.
- 3) For the UK, ROE figures are unweighted.

**Table 24****Return on assets (weighted)***(percentage points)*

	1980	1985	1990	1995	1996	1997	1998
IE	1.26	0.78	1.27	1.54	1.78	1.44	1.72
FI	0.29	0.36	0.39	-0.25	0.49	0.89	1.20
UK			0.29	0.71	1.04	1.15	1.15
GR				1.00	0.74	0.82	1.02
DK				1.33	1.17	1.03	0.97
ES	0.74	0.83	1.36	0.88	0.88	0.94	0.94
IT				0.43	0.56	0.40	0.94
SE		1.31	0.48	0.97	1.14	0.72	0.90
LU	0.55	1.04	0.73	0.56	0.57	0.64	0.81
NL	0.96	1.09	0.72	0.87	0.90	0.83	0.77
DE	0.46	0.62	0.40	0.52	0.48	0.45	0.66
PT	0.49	0.32	0.93	0.55	0.55	0.63	0.61
BE		0.39	0.28	0.33	0.38	0.39	0.45
AT			0.39	0.41	0.41	0.42	0.41
FR				0.14	0.18	0.29	0.39
EURO weighted				0.46	0.50	0.49	0.69
EU weighted				0.54	0.62	0.62	0.78

*Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.*

*Note: ROA ratios include profits before tax.*

**Table 25**  
**Operating cost/operating income**

(percentage points)

	1980	1985	1990	1995	1996	1997	1998
SE				52	63	71	71
NL	66	63	68	67	68	69	71
FR				66	70	69	68
AT			70	69	69	69	68
IT				70	69	73	65
ES	73	63	67	66	64	64	64
BE				70	67	68	63
GR				65	70	62	63
DK				68	68	68	63
DE				59	58	58	60
FI				69	65	56	57
UK			66	64	62	61	57
PT	55	68	42	64	63	59	55
IE	70	70	67	64	61	61	55
LU	38	27	32	35	37	35	39
EURO weighted				65	65	65	64
EU weighted				64	64	64	63

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

**Table 26**

**Rank of non-interest income/operating income and ROE ratios.  
Spearman's rank correlation test**

1998			1997		
Countries	Non-interest income/ operating income	ROE	Countries	Non-interest income/ operating income	ROE
LU	1	4	GR	1	7
SE	2	9	FR	2	14
FR	3	14	LU	3	4
AT	4	15	AT	4	13
IT	5	12	SE	5	11
GR	6	8	FI	6	3
BE	7	11	NL	7	5
FI	8	2	IT	8	15
PT	9	13	UK	9	2
NL	10	5	IE	10	1
IE	11	1	BE	11	9
UK	12	3	PT	12	12
DK	13	10	ES	13	6
ES	14	7	DK	14	8
DE	15	6	DE	15	10
Spearman's rank correlation coefficient		-0.37	Spearman's rank correlation coefficient		-0.08

1995		
Countries	Non-interest income/ operating income	ROE
GR	1	3
UK	2	8
AT	3	11
FI	4	15
LU	5	5
FR	6	14
NL	7	2
BE	8	10
IE	9	1
IT	10	13
SE	11	6
DK	12	4
ES	13	7
PT	14	12
DE	15	9
Spearman's rank correlation coefficient		0.01

Source: National central banks and supervisory authorities represented in the Banking Supervision Committee.

Note: The numbers in the columns above (non-interest income/operating income and ROE) represent the ranking order of the EU countries on the basis of the respective ratios (Tables 19 and 23).

**Table 27****Rank of non-interest income/operating income and operating cost/operating income ratios  
Spearman's rank correlation test**

Countries	1998	
	Non-interest income/operating income	Operating cost/ operating income
LU	1	15
SE	2	1
FR	3	3
AT	4	4
IT	5	5
GR	6	8
BE	7	7
FI	8	11
PT	9	13
NL	10	2
IE	11	14
UK	12	12
DK	13	9
ES	14	6
DE	15	10
Spearman's rank correlation coefficient		0.28

Countries	1997	
	Non-interest income/operating income	Operating cost/ operating income
GR	1	9
FR	2	4
LU	3	15
AT	4	5
SE	5	2
FI	6	14
NL	7	3
IT	8	1
UK	9	10
IE	10	11
BE	11	6
PT	12	12
ES	13	8
DK	14	7
DE	15	13
Spearman's rank correlation coefficient		0.19

Countries	1995	
	Non-interest income/operating income	Operating cost/ operating income
GR	1	9
UK	2	12
AT	3	3
FI	4	4
LU	5	15
FR	6	7
NL	7	6
BE	8	2
IE	9	10
IT	10	1
SE	11	14
DK	12	5
ES	13	8
PT	14	11
DE	15	13
Spearman's rank correlation coefficient		0.14

Source: National central banks and supervisory authorities represented on the Banking Supervision Committee.

Note: The numbers in the columns above (non-interest income/operating income and operating cost/operating income) represent the ranking order of the EU countries on the basis of the respective ratios (Tables 19 and 25).

**Table 28****Correlation of income sources****Correlation of net interest income and non-interest income***(both expressed as a percentage of the average balance sheet total)*

	Period covered	Sector for OECD sample	Correlation coefficient	
AT	1987-96	All banks	-0.13	
BE	1981-97	All banks	-0.05	
DK	1980-97	Commercial banks and savings banks	0.11	0.16
FI	1980-97	All banks	-0.90	
FR	1988-97	All banks	-0.26	
DE	1980-96	All banks	0.17	
GR	1989-96	Commercial banks	0.99	
IE	1995-97	All banks	0.45	
IT	1984-97	All banks	-0.67	
LU	1980-97	Commercial banks	-0.17	
NL	1980-96	All banks	-0.03	
PT	1980-97	Commercial banks	-0.51	
ES	1980-97	All banks	0.32	
SE	1980-97	Commercial banks	0.54	
UK	1984-97	Commercial banks		
			Unweighted	Weighted
<b>EU average</b>			0.00	-0.09
<b>euro area average</b>			-0.10	-0.25
United States	1980-96		0.80	
Japan	1980-95		-0.20	
Switzerland	1980-96		0.45	

*Source: OECD Bank Profitability.*

**Table 29A**

**Measurement of volatility**  
**Coefficient of variation**  
**Net interest income**

(as a percentage of the average balance sheet total)

	Period	Coefficient of variation	
AT	1987-97	6.93	
BE	1981-97	31.84	
DK	1980-97	16.39	
FI	1980-97	24.10	
FR	1988-97	25.94	
DE	1980-97	9.77	
GR	1989-97	18.70	
IE	1995-97	15.48	
IT	1984-97	10.87	
LU	1980-97	21.22	
NL	1980-97	12.79	
PT	1980-97	32.70	
ES	1980-97	16.59	
SE	1980-97	13.83	
UK	1984-97	15.04	
		Unweighted	Weighted
<b>EU average</b>		18.13	15.68
<b>euro area average</b>		18.93	15.81
United States	1980-96	10.41	
Japan	1980-95	15.15	
Switzerland	1980-96	11.20	

Source: OECD Bank Profitability.



**Table 29B****Coefficient of variation****Non-interest income***(as a percentage of the average balance sheet total)*

	Period	Coefficient of variation	
AT	1987-97	29.29	
BE	1981-97	18.76	
DK	1980-97	124.23	
FI	1980-97	13.87	
FR	1988-97	28.87	
DE	1980-97	12.18	
GR	1989-97	13.59	
IE	1995-97	6.20	
IT	1984-97	17.40	
LU	1980-97	29.04	
NL	1980-97	11.76	
PT	1980-97	22.91	
ES	1980-97	15.08	
SE	1980-97	52.25	
UK	1984-97	11.82	
		Unweighted	Weighted
<b>EU average</b>		27.15	20.17
<b>euro area average</b>		18.67	18.04
United States	1980-96	24.16	
Japan	1980-95	62.44	
Switzerland	1980-96	17.93	

*Source: OECD Bank Profitability.*

**Table 29C****Coefficient of variation****Net interest income minus total provisions***(as a percentage of the average balance sheet total)*

	Period	Coefficient of variation	
AT	1989-97	8.08	
BE	1981-97	35.20	
DK	1980-97	17.83	
FI	1980-97	18.28	
FR	1988-97	45.29	
DE	1980-97	9.70	
GR	1989-97	20.67	
IE	1995-97	15.62	
IT	1984-97	15.65	
LU	1980-97	21.63	
NL	1980-97	16.05	
PT	1980-97	27.97	
ES	1980-97	19.75	
SE	1980-97	57.29	
UK	1984-97	22.69	
		Unweighted	Weighted
<b>EU average</b>		23.45	22.51
<b>euro average</b>		21.20	21.38
United States	1980-96	14.22	
Japan	1980-95	19.13	
Switzerland	1980-96	23.56	

*Source: OECD Bank Profitability.*

**Table 29D****Coefficient of variation****Net interest income minus provisions on loans***(as a percentage of the average balance sheet total)*

	Period	Coefficient of variation
AT	1989-97	11.70
BE	1993-97	6.68
DK	1980-97	16.63
FI	1980-97	21.81
FR	1988-97	43.10
DE	1980-97	9.63
GR	1989-97	20.07
IE	1995-97	15.62
IT	1984-97	16.22
NL	1993-97	3.09
PT	1990-97	27.66
ES	1980-97	18.30
SE	1980-97 <sup>(1)</sup>	69.64
		<hr/>
		Unweighted
<b>EU-13 average</b>		21.55
<b>Euro-10 average</b>		17.38
		<hr/>
United States	1980-96	14.22
Japan	1980-95	19.06

1) Data are not available for the period from 1992 to 1996.

Note: For the sectors of the banking system in each country included in the OECD sample, see Table 22.

Source: OECD Bank Profitability.

**Table 30**

**Volatility of non-interest income and its components**  
**Coefficient of variation of non-interest income and its components**

(sorted by the non-interest income coefficient of variation in descending order)

**Period from 1993 to 1998**

	Non-interest income	Fees and commissions	Income from securities	Profit on financial operations	Other operating income
DK	38	19	69	161	44
PT	37	33	67	40	30
LU	31	27	17	46	85
SE	32	9	105	68	49
ES	30	18	19	96	30
IT	29	32	75	59	29
FR	28	16	93	36	
BE	25	30	21	37	10
NL	25	22	61	27	22
DE	21	13	33	50	63
GR	18	13	22	35	24
AT	13	12	35	14	9
EU-12 average (unweighted)	27	20	51	56	36

Sources: National central banks and supervisory authorities represented on the Banking Supervision Committee.

*Notes*

- 1) The coefficient of variation was calculated on the basis of data provided by national authorities. The approach followed included, first, the conversion of all amounts into ECU and, second, the calculation of the co-efficient of variation. This implies a different methodology (based on nominal values) than the one followed in the calculation of the volatility (co-efficient of variation) of interest and non-interest income (based on ratios, see Tables 29A to 29D).
- 2) Other operating income was not reported as a different sub-category by FR for the period from 1993 to 1997, whereas the figure reported for 1998 was negligible as a percentage of non-interest income. The EU unweighted average of the coefficient of variation for other operating income has been calculated for the remaining 11 countries mentioned in this table.