EMU and the structure of the European banking system

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1. Introduction

The advent of the European Economic and Monetary Union (EMU) represents new opportunities and challenges for financial institutions in Europe. The purpose of this study is to assess its importance as a factor provoking changes in banking structure and performance, against the background of the various trends affecting the medium to long-run prospects of the banking industry around the world (liberalisation, internationalisation, technological change, disintermediation, concentration).

There are several different ways to consider these changes. First, EMU may be seen as the extension to the European context of the aforementioned world trends by way of progress towards frontier opening, pressures on regulatory differences, and respect of market principles. Second, EMU may be viewed as a further step in the direction of European economic and financial integration, so that it is difficult to distinguish its effects from those of the Single Market and the Second Banking Co-ordination Directive. In particular, one may argue that one of the major gains of the single currency is that it makes the single market real. Third – and this is the approach chosen in this paper – one can consider that EMU may, in itself, have very direct and specific consequences on the European banking system, for instance by exacerbating underlying trends or even having a catalytic role. Of course, EMU should not be seen as the only driving force behind current developments in the European banking industry. The study attempts therefore to assess the relative impact of Monetary Union and to ponder its effects as compared with the other drivers of change. The analysis distinguishes between the aggregate impact of Monetary Union on the whole EU-wide banking system and its differential effect on national or sectoral components.

The overall conclusion of the study is that EMU may have some important effects on the nature of banking activities and the level of competition, at the retail as well as wholesale level, although there remains some uncertainty, notably regarding: (i) how large are the returns to scale in the different activities; and (ii) how fast are retail markets going to change.

In order to provide a comprehensive assessment of the future of the European banking industry in Stage Three of EMU, it is convenient to follow the standard paradigm – albeit sometimes criticised – in Industrial Economics, namely the Structure-Conduct-Performance approach. As a consequence, the paper studies the effect of EMU on different banking activities, e.g. foreign exchange, money market and payment systems (Section 2), before taking a more comprehensive view of banking strategy and profitability (Section 3).

2. Direct effect of EMU on the structure of banking activities

EMU will probably require significant adjustments in the supply of financial services and banks' products, with possible substitution among activities. In that respect, it may be useful to understand the dynamics of EMU in terms of the creation of a level playing field for market activities, which will foster the convergence of financial structures and help to integrate other asset management activities. This motivates reviewing market and other banking activities successively.

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2.1 EMU and market activities

2.1.1 Foreign exchange transactions

Concerning market activities, the most immediate changes will be seen in the foreign exchange markets, since cross-trades between currencies participating in the Monetary Union will disappear. The need for currency hedging transactions will also decrease, although this process has already started with the reduction of volatility among currencies participating in the ERM, so that the bulk of hedging transactions currently involve the dollar. New activities may emerge, in particular associated with the use of the euro as a reserve currency, although this will only occur as the euro becomes established.

Table 1
Impact of EMU on foreign exchange transactions
Share in total transactions reported by the country (%)

	1	2
	Transactions between DM and EU currencies	**Transactions with non-EU currencies***
United Kingdom	9.5	36.6
Germany	15.4	21.8
France	27.1	13.7
Denmark	13.5	29.5
Belgium	13.5	14.7
Netherlands	21.4	14.4
Italy	17.1	4.5
Sweden	24.4	16.6
Luxembourg	13.0	21.6
Spain	20.4	4.0
Austria	11.3	15.0
Finland	33.5	12.4
Ireland	37.7	9.1
Greece	13.1	22.1
Portugal	26.8	6.7
Total EU 15	13.4	28.3

* Transactions between USD or DM and non-EU currencies + 50% of transactions between non-EU currencies and other currencies than USD and DM.

Sources: BIS (1995 Survey on Foreign exchanges activity) and author's calculations.

Regarding the importance of intra-European cross trades (volumes involved, effects on profits,[2] it is difficult to find reliable information. The main reason is that the US dollar, being a dominant currency, may be used as a vehicle for trades between European currencies, although the DM has progressively become the main vehicle currency for cross-trades in Europe.[3] According to the 1995

[2] In most countries, margins on forex transactions are very low, so that the final reduction in revenues should be limited. Salomon Brothers (1995, quoted by McCauley and White (1997)) estimate that revenues derived from foreign exchange might fall by up to 10%, but this would only imply a 1% reduction in total revenues. However, a distinction has to be made between the wholesale business and retail transactions, which are much more profitable. This may explain differences across countries: in Finland, forex losses would amount to only 2-4% of banks' total income.

[3] The literature on market microstructures shows that forex markets may be viewed as a network between currencies. In order to maximise liquidity, these markets tend to be organised in a hierarchical way, with a limited number of "nodes" (vehicle currencies) connected to the other "satellite" currencies by liquid bilateral markets, whereas exchanges between

BIS survey on forex activity, the share of spot trading involving the dollar against EU currencies in the total turnover of Germany, France and the United Kingdom was 62.8, 55.8 and 53%, respectively, in 1995, while transactions with countries outside the zone cannot be distinguished from those where the USD is used as a vehicle currency.[4] At the same time, forex trading involving the domestic currency against other EU currencies accounted for 3.6% of total forex turnover in the United Kingdom, 15.3% in Germany and 24.6% in France. Keeping in mind that direct cross-trades between EU currencies usually involve the DM, trades between the DM and one of the other EU currencies (including the domestic currency) were 9.5% of total turnover in the United Kingdom, compared to 13.4% at the EU-15 level and 19% for the European Union outside the United Kingdom (Table 1, column 1). This may provide a measure of the immediate effect of EMU as a reduction between 10% and 15% of forex trades in EU countries.[5] A part of this reduction, as estimated on the basis of data for 1995, may have already occurred to the extent that currency traders have reduced their trading and hedging activity as a result of the decrease in volatility and arbitrage opportunities.

The various EU countries also exhibit significant differences among them. In general, financial centres dealing with non-European currencies will be less affected than others. In particular, London is the most active forex market in the world. In 1995, its total turnover in the spot market was six times larger than in Frankfurt and eight times larger than in Paris. In addition, the currencies traded in London are far more diversified than in Frankfurt or Paris, despite the fact that 41.6% of cross-trades between European currencies that involve the DM and take place in Europe originate in London. More generally, in the United Kingdom and Germany, 36.6 and 21.8% of total turnover, respectively, deal with non-European currencies. In the latter case, the importance of non-EU-currency trades is due to the prominent role of the DM, while the corresponding figure is only 13.7% for France (Table 1, column 2).

Concerning the development of new activities, independently of the evolution of forex transactions motivated by speculative objectives, opinions differ widely regarding the expected role of the euro as a reserve and transactions currency. Given the relative autarky of the European Union as a commercial zone, trade invoicing in euro may not be a source of large development in forex activities.[6] However, it is well known that the latter transactions tend to be more dependent on portfolio flows. In addition, if the larger size and lower external trade to GDP ratio in the euro-area induces an increase in the day-to-day volatility of the bilateral euro exchange rates with the dollar and the Japanese yen, derivative markets would develop more significantly. The use of the euro as an international or as a reserve currency will also depend, of course, upon the willingness of investors outside the Monetary Union – both official and private – to hold the currency in their portfolio. To the extent that the euro would rapidly become fully credible, more transactions could effectively take place in euro, providing a competitive advantage to banks in the euro area.[7] The final impact for banks will depend on their ability to reposition themselves for trading the euro against third currencies, although the Asian crisis has made clearer the risks associated with emerging markets. It is possible

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"satellite" currencies imply two transactions involving the vehicle currency on one side (see Hartmann (1996)). The gains from higher liquidity have, however, to be balanced by the need to pay bid-ask spreads twice. An informal survey of practices in EU forex markets has shown that the DM has progressively become the dominant vehicle currency for intra-European spot trades supplanting the USD, with a market share between ½ and ⅔ in the United Kingdom, around ⅔ in France, while most trades would involve the DM for Denmark, Belgium, Austria, and maybe also for Italy and Ireland. On the other hand, Portugal and Greece seem to use the USD more extensively.

4 As a consequence the estimates presented here only provide, ceteris paribus, a lower bound of the reduction in forex activity.

5 The 67th BIS Annual Report estimates that the world forex market could be reduced by 10%.

6 Hartmann (1996), on the basis of several assumptions, estimates that, with 15 participating countries at the start of EMU, 24% of world trade would be invoiced in euro. However, the currency of invoicing may depend on the size of the exporting/importing country, so that the Single Currency Area could induce a larger share of invoicing in euro.

7 If the euro becomes an international currency, Europe-based banks, which will have both assets and liabilities (in particular capital) in euro, may have a competitive advantage over US and "pre-in" global institutions.

that such additional transactions in the foreign exchange market of the euro would be mostly located in London, even if the United Kingdom does not participate in the Union.

2.1.2 Money markets

EMU will have very significant effects on the money markets with the new framework for the implementation of the single monetary policy creating the necessary conditions for the integration of European money markets.

First, the technical infrastructure to support a large European money market will be provided by the interlinking of real-time gross settlement (RTGS) systems through TARGET. Large cross-border payments denominated in euro will therefore be processed as smoothly as if they were domestic payments. Initially designed to carry out the single monetary policy, TARGET might also be available for other kinds of transfers as an alternative to private net settlement or non real time systems (such as the ECU Clearing), mainly at the wholesale level, and should therefore contribute substantially to reducing the kind of systemic dangers to which netting systems are exposed.

Second, the ESCB will rely on monetary policy instruments designed to create a deep and liquid money market at the EU level. As indicated in the "Framework Report" published in January 1997 by the EMI, and explained in more detail in the so-called "General Documentation" published in September 1997, the ESCB will rely on open market operations as well as on standing facilities. The interest rate corridor between the latter (the deposit and the marginal lending facilities) is designed to bind overnight market rates, while leaving significant leeway for banks to manage their interest exposure and thus encouraging market development. The ESCB will also rely on a broad range of counterparties. In addition, the ECB Governing Council has decided to make use of fully remunerated reserve requirements, and the averaging provisions mechanism might be viewed as contributing to increasing the volume of the interbank market. Compared with alternative ways of controlling volatility in the interbank market, reserves with averaging facilities have the advantage of assigning a central role to market forces without requiring the central bank to be frequently active in the market. Equal treatment of counterparties and the reliance on market-based policy instruments are consistent with the requirement, enshrined in the Maastricht Treaty, that the ESCB "shall act in accordance with the principles of an open market economy with free competition".

The single monetary policy will, however, require market participants to adapt to the new environment. First, the harmonisation of Monetary Policy Instruments and Procedures (MPIPs) at the start of Stage Three will have an impact on banks' refinancing. New refinancing operations and facilities are introduced, requiring further adjustment of techniques towards a greater use of interventions at market rates in some countries. Of course, some countries have already made some adjustment (such as the development of the short-term money market in Germany) and changes realised in the past did not prove to be too difficult to implement for many countries. For a few other countries, however, the adjustment is more significant.

Second, in order to accommodate differences in financial structures across countries, two tiers of eligible collateral are to be allowed for monetary policy operations: the first one includes instruments that are common to all countries, while the second comprises assets which are of particular importance for national banking systems and includes marketable and non-marketable financial obligations as well as, in some cases, equities. In the case of Tier 2, the assets and eligibility criteria are established by each NCB, under ECB guidelines and with its approval. This would, for example, allow the inclusion of a relatively large volume of trade bills and bank loans in Germany and France.

Third, one might anticipate that not only the harmonisation effect of the single monetary policy, but also the greater level of competition will progressively reduce arbitrage opportunities linked to liquidity differentials across money markets. However, the US case shows that it has not prevented the development of large money markets. In particular, the decision that the ECB will use reverse transactions as the main instrument for implementing monetary policy might provide a strong incentive for the development of an EMU-wide private "repo" market, where financial and non-

financial entities engage in short-term collateralised refinancing operations for conducting day-to-day treasury management (see Schinasi and Prati (1997)).

2.1.3 Securities markets

EMU will also have an impact on securities markets, where banks, especially the largest ones, are major participants either through the management of their own portfolio or as intermediary in investment banking activities. EMU will create the potential for the emergence of deeper and more liquid financial markets and may also affect the nature of products offered. The development of large European "domestic" markets will provide an opportunity for banks to diversify their revenues towards a larger share of non-interest income.

Regarding the size of financial markets, EMU will offer EU institutions an easy access to a really global financial market and the opportunity to compete on equal footing with US and Japanese banks. Mostly on account of the large size of the EU domestic bond markets (see Schinasi and Prati (1997)), the capitalisation of existing (domestic and international) debt securities and equities in the EU-15 area amounted to 12,500 billions dollars at the end of 1995, as compared to 27,000 billions dollars for the US and Japanese markets taken together. The current process of harmonisation of market conventions and codes of practices (day counts, business days, reference rates...) will not only ensure the continuity of operations when moving to Stage Three of EMU and the smooth functioning of the area-wide money market based on the euro, but will also promote the fungibility of instruments across countries, a necessary condition for the creation of deeper financial markets (see the Giovannini (1997) Report). The greater depth and liquidity of EU markets after the introduction of the Single Currency, as well as the strength and the stability of the euro, would also attract additional investors from outside the euro area.

Regarding the nature of products offered on EU securities markets, EMU may have significant effects. First, one can expect that the disappearance of foreign exchange risk means that credit risk will become more important in relative terms, possibly leading to the emergence of a "credit risk culture" in the management of debt instruments. Investors, as well as banks, may therefore switch from a country to a sectoral approach. In particular, this will be favoured by the implementation of the "no bail-out" clause, which will have an impact on the rating of public debt, in the sense that domestic issues are likely to receive ratings similar to those currently attributed to foreign issues (see BIS (1996)), while, at the same time, fiscal discipline and the strict application of the Stability and Growth Pact should per se reduce credit differentials to a minimum.[8] Where banks hold a significant proportion of government bonds (France, Germany, Belgium and Luxembourg), they will have to adjust their portfolios in the light of perceived variations in this credit risk. At the same time, the zero credit risk weighting for zone A government debt (which includes all EU countries' government debt) in the solvency ratio regimes will provide a strong incentive to invest in government bonds. Investors will also pay more attention to the liquidity characteristics of securities.

Second, one could witness in the very near future the creation of a unified European capital market for prime borrowers, partly as a consequence of international co-operation among European exchanges. Although EMU provides a strong incentive for such a restructuring for "in" countries, other countries like the United Kingdom, but also Switzerland, would be associated. This would include the emergence of a single reference bond yield curve, as well as a European equity market for blue-chip stocks. Such markets would, however, not cover the whole spectrum of issuers, since securities from small and medium-sized companies would probably remain national. The latter compartment of the market will probably remain, to a large extent, separated, since investors' home bias is likely to remain important, because of asymmetric information, tax differences, or attempts by national centres to protect their market shares.

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[8] Differences in rating across Canadian states may be taken as evidence of the likelihood of such an effect, although the effective bankruptcy of a European government would only occur after running through the alternative assistance mechanisms, including those from the IMF.

Third, other markets may also develop. The Stability and Growth Pact will, by constraining fiscal policy and imposing limits on government deficits, reduce governments' recourse to the capital market and thus make room for other issuers. In addition to population ageing, it will put additional pressures on pay-as-you-go pension systems in favour of funded ones. Non-government bond and equity markets should therefore grow, accelerating the general movement towards disintermediation. In addition, to the extent that the operational framework for monetary policy increases the demand for private paper, it will affect financial market structures, by creating the "critical mass", allowing new products to be sufficiently competitive to expand significantly. This will increase the scope for securitisation and might even lead to the emergence of a low-grade bond market in addition to the market for prime borrowers.

Fourth, EMU will also have an impact on derivatives markets. Products linked with short-term interest rates are likely to suffer falls in trading volumes in many cases, since the single monetary policy in Stage Three implies that there will only be room for one leading short-term contract. This may have severe consequences for the 16 European futures or options markets (including Switzerland). As far as long-term contracts are concerned, the coexistence of more than one reference bond market will not be a durable feature, so that one can anticipate either a single contract – although this may imply co-operation between financial centres, as is currently the case between DTB and MATIF for interest contracts – or several identical ones with similar characteristics (margins, opening hours). Banks may have to reconsider their degree of participation in the exchanges providing such derivatives contracts, in particular regarding seat ownership.

2.2 EMU and traditional banking activities

EMU will also have an impact on "core" banking activities, i.e. payment activities, as well as credit and deposit-taking business and may affect the regulatory environment. The analysis below focuses on banks as a whole, leaving to Section 3, the analysis of competition among banks.

2.2.1 Further progress in payment systems

EMU will induce further progress in payment systems, even if technological innovation remains the major driving force, as evidenced not only by electronic money but also by many other money transmission services. For instance, technological innovation may itself be fostered by the transition to the Single Currency. In particular, the liberalisation of telecommunications, favoured by the Single Market that EMU is due to complete, may lead to a more widespread use of phone, PC and Internet banking. Network-based e-money payments may also benefit from a global and highly contestable market. Indeed, some observers expect that, due to the non-availability of euro bank notes during the transition period, electronic money might grow significantly.

Regarding revenues, banks' profitability will be adversely affected since revenues from money transmission services will be reduced with the disappearance of correspondent banking fees derived from intra-European forex operations.[9] In addition, the structure of traditional correspondent banking activities will have to adjust to the new environment. The new payment systems will allow balances associated with correspondent banking to be reduced, but also the rents associated with it. This will mainly affect large banks, which are more significantly involved in such activities, whereas conversely small banks will benefit from competition in payment systems. At the same time, if the euro were to gain an international role, Single Currency area banks will be in a position to increase correspondent banking activity. These changes may also affect former alliances among groups of banks based on correspondent services (see Section 3). Finally, due to the interlinking of national RTGS, payment system at the national level will operate in a much more competitive environment,

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[9] The Boston Consulting Group (1996) estimated that forex fees account for 50% of the $10 billion of intra-European cross-border revenues.

with a possible reduction in the "float".[10] In particular, national RTGS will come under the pressure of corporate clients who wish to take advantage of EMU to organise treasury and risk management on a European scale. Differences across countries may also imply diversion of traffic. Therefore, much of the evolution will depend on the pricing policy of payment operations, characterised by more important returns to scale in wholesale activities than in retail operations.[11] Overall, this background implies that network effects propagated by revenue changes may potentially be significant. In addition, if securities markets are to expand and become more diversified to compete on an equal basis with the United States, securities settlement systems will have to further improve and develop significantly. In that context national securities depositories will face the competition of international depositories (Cedel, Euroclear).

2.2.2 Effects on credit and deposit activities

It is also necessary to study the extent to which EMU will affect traditional intermediation activities. EMU is likely to increase the size of securities markets so that securitisation in the "narrow sense" – i.e. the transformation of banking assets into tradable securities through financial engineering – will make further progress, offering banks more flexibility in terms of asset/liability management. At the same time, with securitisation in the "broad sense" (larger use of instruments tradable in deeper financial markets), the competitive disadvantage of traditional bank intermediation vis-à-vis financial markets and non-banks is likely to increase, with differential effects on deposit collection and credit activities.

On the deposit side, banks are likely to increasingly face competition from institutional investors. Following the disappearance of foreign exchange risk, limits on portfolio diversification by institutional investors, like the "currency matching rules", are likely to be applied only outside the euro area.[12] This will boost the cross-border investment activity of institutional investors. As a consequence of the changing nature of demand, with the greater use of mutual funds, the maturity of banks' deposit-taking may become shorter and deposit collection more costly.

On the asset side, greater competition in the securities business will coexist with the persistence of asymmetric information in lending activities. In the latter case, the need to have a direct link with borrowers means that traditional financial intermediation is likely to remain substantial, in particular lending to small and medium-sized enterprises, for whom access to the securities markets is more difficult. Nevertheless, banks face competition also in their traditional lending activities due to the dramatic reduction of transaction costs and the improved possibilities to evaluate risk brought about by information technology. In the not too distant future, the development of securitisation – fostered by EMU – and the growth of mutual funds may increase the challenge posed to banks by rating agencies using computerised credit scoring techniques. Even for small and medium-sized enterprises (as well as technology firms), increasingly connected securities markets with improved disclosure rules might also diminish the information advantage of banks. In that respect, securitisation in the "broad sense" may reinforce securitisation in the "narrow sense" targeted at small and medium sized companies. As a result, banks may end up with the less profitable fraction of their traditional customers in their portfolio. To counter this risk, banks might therefore decide to "unbundle" their products, and to concentrate on activities where they keep comparative advantages, namely

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[10] According to the Boston Consulting Group (1996), revenues derived from the "float" should be reduced from 10 to 5% of wholesale payment revenues, but they represent a much higher fraction of retail payments.

[11] On wholesale activities, see Bauer-Hancock (1995) for US ACH (Automated Clearinghouse, the US, nation-wide, value-dated, electronic fund transfer system used for recurring consumer and commercial payment). On retail operations, see Humphrey (1994) for a description of the "excessive" use of ATMs in the United States, although "cybermoney" may effectively help reduce costs.

[12] For example, currency matching rules require insurance companies, not to hold more than 20% of their assets in foreign currencies, unless they are matched by liabilities denominated in the same currency. The Single Market and the constitution of international groups of institutional investors have already limited the relevance of such rules.

monitoring borrowers and on the provision of liquidity insurance to them (through back-up lines), without effectively funding the loans (Rajan (1996)).[13] To summarise, banks' competitive advantages are likely to be reduced, while EMU will intensify challenges for assets transformation and uncertainty management.

2.2.3 Liberalisation and harmonisation of the regulatory environment

EMU, by increasing competition among financial systems, is likely to trigger further steps towards the liberalisation of banking regulation. On the one hand, deregulation favours financial innovation and the development of financial markets. In general, it enables other financial and non-financial institutions to compete with banks, thereby increasing disintermediation (see the previous paragraph). On the other hand, if it can be argued that EU directives fostering the Single Market have, in most cases, been implemented in national legislation, there remains scope for further harmonisation in many countries, in particular in the tax and social area, or regarding UCITS and pension funds. In the absence of regulatory harmonisation, each country may try to enhance the attractiveness of its home market by introducing structural reforms that will affect competition. In addition, being more visible in the Single Currency area, regulatory differences will face further pressures leading to their progressive disappearance. It may therefore create a level playing field, via international competition, that would be more favourable to banking activity. In particular, the deregulation of the remuneration of deposits may, in France for instance, enable banks to compete more effectively with MMFs. An associated issue is whether banks organised under private law will not be better equipped than publicly owned or co-operative banks to manage the transition to EMU.

3. Effects on banking strategies and performance

Taking into account possible externalities across activities, we now consider the overall effect of EMU on banking institutions. First, we investigate the strategies that European banks may develop to accompany changes in their basic activities. Second, we assess the effect of EMU on banking profitability.

3.1 EMU imposes new strategic choices

3.1.1 Banking capacities

Concerning banking capacity, it is important to investigate whether banks, facing a larger market as a consequence of EMU, will try to exploit economies of scale or scope in banking activities, if any. The economic literature is not very conclusive regarding the existence of returns to scale at the level of the banking firm. Although the analysis of Section 2 indicates that, in some product lines, there exist potential returns to scale that EMU will help to exploit, the economic literature offers generally conflicting evidence regarding the returns to scale at the level of the banking unit. One of the reasons is that returns to scale in banking may relate not to institutions themselves but rather to processes and functions.[14] It is also interesting to note that returns to scale of non-bank competitors, like pensions

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[13] However, "unbundling" has the additional effect of reducing entry barriers. This may favour the growth of "supermarket banking" (where food retailers offer competitive deposit facilities and an increasing array of other financial services in-house), as in the United Kingdom.

[14] See in particular Llewellyn (1997). Schaffer and David (1986) found evidence of returns to scale in interstate banking for the United States. Periods of branching deregulation were usually followed, as expected, by a significant increase in out-of-state branches (Humphrey (1994)). The conclusion of the subsequent literature is either that scale economies are usually exhausted at a small scale (maximum gains from risk diversification are obtained at a small size and offset by organisation costs, so that fixed costs are a relatively small fraction of total costs), or that evidence of returns to scale are generally based on specification errors (Berger and Humphrey (1991, 1992) and Bauer et alia (1993) find evidence of

and mutual funds are not substantial either (Dermine (1996)). It should be kept in mind, however, that returns to scale may not be very substantial in retail banking, though current measures are not totally reliable, in the sense that they could be influenced by the regulatory environment which is about to change with EMU. The success of possible mega-mergers intended to exploit returns to scale at the EU level would therefore require a substantial reorganisation of banks in order to cut duplicated costs. Otherwise, diseconomies of scale would appear.

There exist clear externalities between activities, although the literature is, again, inconclusive as to whether such economies of scope may justify the existence of large universal banks. While specialist providers are often more efficient than others, there is, at most, evidence of small gains from joint production. It may be useful to distinguish, on the one hand, activities that are more conducive to concentration (liquidity and potfolio management, treasury and dealing activities, payment systems) and, on the other hand, those which do not lead to further concentration. As regards the first type of activities, Vander Vennet (1994) notes that off-balance sheet activity may provide banks with cost economies. There is also anecdotal evidence that returns to scale in money market operations may also imply concentration of other activities. In addition, financial markets induce strong network externality effects, based on liquidity and the supply of infrastructure (experienced labour force, availability of ancillary services).

As a consequence, the concentration of financial centres could have strong effects on the location of banking activity. For instance, if financial markets were mostly concentrated in one location (London, for instance), banks would have a strong incentive to locate their money market activities in this financial centre, so that geographic concentration will also imply a reduction in the number of banks. On the other hand, if financial market activities were to remain spread out in several centres (Frankfurt, Paris), banking location would be more evenly distributed across countries. This trend could be fostered by the decentralisation of monetary policy, since national central banks use institutions active in their own countries as most natural counterparties.

Concerning activities that are less likely to increase concentration, there are other factors that may offset the effects of geographic concentration of money market activities. For instance, a large part of retail banking activities would remain decentralised anyway, although easy remote electronic access would support concentration. Moreover, the US experience shows that, given the progress made by telecommunication technology and the persistence of wage differentials across the EU, banks may choose to locate their most labour intensive activities as well as their back offices outside the main financial centres.

3.1.2 Competition in banking and future prospects

EMU will increase competition among financial institutions and to assess the overall effect of EMU, it is useful to distinguish between wholesale and retail markets. Wholesale markets are already significantly internationalised and competitive, but competition in these markets will nevertheless evolve over time. The single currency implies a further redistribution of banking activities to the extent that competitive advantages, partly based on the existence of national currencies, will disappear. In particular, the "anchoring principle", which is imposed by some central banks and requires domestic financial institutions to lead manage bond issues, will, if maintained, be enlarged to a wider zone, or even disappear.[15] In addition, the main currency-based competitive factor, namely the expertise in the domestic monetary environment will, according to Dermine (1996), disappear. However, other competitive factors are likely to be unaffected by the single currency in the short run.

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diseconomies of scale). Concerning the EU, under the caveat that the number of studies is smaller, similar conflicting results are found. There is evidence of returns to scale in France (Dietsch (1993)) and Italy (Parigi et alia (1992)). However, Lang and Welzel (1995) conclude that scale economies in German banks exist up to a certain size, and Vander Vennet (1994), that, for a sample of EU banks, the average costs are minimised between USD3 and 10 billion.

[15] The anchoring principle, initiated by some central banks to protect their currency, has traditionally restricted the lead management of bond issues to banks incorporated in the country whose currency is being used.

These include the existence of a distribution network of customers, as well as access to information on supply/demand flows, which help to assess the direction of price movements. Regarding mergers and acquisitions, the knowledge of the accounting, legal and fiscal environment also remains an important determinant. However, all these competitive advantages are not irreversible and may be progressively eroded. In addition, in the context of the development of a pan-European trading system linking the different exchanges, the importance of the size factor in terms of market power (i.e. the cumulative advantage of operating on a larger scale through the ability to control a larger market share) indicates that current positions at the national level may be progressively overturned by European or even by other global players, especially US institutions.

Table 2

Internationalisation of European banking networks

Market share of foreign institutions (as a % of total domestic assets)

	Branches from EEA countries			Branches from third countries			Total branches			Subsidiaries from EEA countries			Subsidiaries from third countries			Total subsidiaries			Total branches and subsidiaries		
	1985	1990	1995	1985	1990	1995	1985	1990	1995	1985	1990	1995	1985	1990	1995	1985	1990	1995	1985	1990	1995
BE		10.0	9.1		10.0	7.8		20.0	16.9		8.0	9.8		1.7	1.3		9.7	11.1		29.7	28.0
DE			0.7			0.6			1.4			1.5			1.4			2.9			4.3
GR	4.5	6.9	8.8	9.1	5.2	7.2	13.6	12.1	16.0	0.3	0.7	1.7	0.7	0.2	0.8	1.0	0.9	2.5	14.5	13.0	18.5
FR			3.4			3.6			7.0									5.2			12.2
IE			16.5			1.8			18.3			18.4			3.9			22.3			40.6
IT	1.6	1.0	2.9	0.1	0.4	0.8	1.7	1.4	3.7	0.2	0.5	1.5	0.7	0.9	0.3	0.9	1.4	1.8	2.6	2.8	5.5
LU			20.0			1.0			21.0			70.9			7.8			78.7	91*		99.7
NL	2.7	3.1	2.9	1.3	0.7	0.7	4.0	3.7	3.5	4.2	5.4	3.7	6.5	3.4	2.5	10.7	8.8	6.2	14.6	12.6	9.8
AT	0.1	0.1	0.6	0.7	0.1	0.1	0.8	0.2	0.7		1.2	2.1		1.4	0.7		2.6	2.8	0.8	2.8	3.5
PT	1.6	0.5	3.0	0.0	0.2	0.1	1.6	0.7	3.1	0.0	2.1	4.9	0.6	1.0	1.4	0.6	3.1	6.3	2.3	3.8	9.4
FI			6.5	0.6	0.6																
SE	0.0	0.0	1.6	0.0	0.0	0.1	0.0	0.0	1.7	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	2.5
UK	8.6	14.2	21.7	40.0	34.0	23.2	48.6	48.2	44.9			1.5			5.2			6.7			51.6

Assets of foreign branches and subsidiaries of domestic institutions (as a % of total domestic assets)

DE			9.6			4.8			14.4			6.8			0.7			7.5			21.9
GR	3.0	1.7	2.9	1.1	0.7	0.2	4.1	2.4	3.1	0.8	0.9	2.3	2.5	2.2	1.7	3.3	3.1	3.6	7.3	5.5	6.7
FR			8.0			9.2	0.0	0.0	17.2			7.4			3.5	0.0			0.0	0.0	17.2
IE			11.9			0.8			12.7			6.3			12.9			14.2			26.9
IT		11.0	8.0		7.4	4.7		18.4	12.7		3.2	3.9		0.8	2.1		4.0	6.4		22.4	19.1
LU			0.3			0.7			1.0												
AT		1.7	1.9		1.8	2.8		3.5	4.7												
PT	9.9	12.4	10.3	9.3	5.0	5.2	19.2	17.4	15.5			3.5			3.6	0.0	0.0	8.3	19.2	17.4	23.8
FI	4.0	6.0	4.4	0.1	3.7	4.6	4.0	9.7	9.0	6.5	3.0	0.3	3.0	2.3	0.4	9.5	5.3	0.9	13.5	15.0	9.9
SE		2.4	7.5		1.7	3.0		4.1	10.5												

* 1987 (Source: Steinhert and Gilibert (1989)).

Source: National central banks and supervisory authorities, unless otherwise indicated.

In retail banking markets, changes in competition can be expected to be more pronounced on the liabilities than on the assets side. In particular, remote access to banks in other Member States will become very easy in the context of a single currency and the relevance of branches as distribution centres of deposit products may be reduced. Regarding the assets side, Monetary Union will enable operations in any national market to be financed through deposits obtained in the home country, hence also facilitating the remote supply of financial services. Consequently, competition in some segments of the market is likely to increase. This is the case of activities which are relatively homogeneous and closely related to the deposit function, like consumer credit and standard mortgage loans, as opposed to small-scale commercial and specialised consumer loans, which require more direct contact with customers. On the other hand, there still exist legal, fiscal and institutional obstacles to full integration and these will limit the effects of competition. If one excludes the particular role of countries like Ireland, Luxembourg and the United Kingdom, this explains why the level of internationalisation of

banking networks is currently lower than in the United States, where foreign penetration was around 20% in 1993 (see Table 2 for EU countries and Ettin (1995) for the United States).

Indicators of concentration and contestability

To assess future trends in terms of competition, we rely on two types of analysis: first, we compute concentration indicators at the euro-area level; then, we report results of tests of contestability at the national level but based on rigorous microeconomic foundations. This dual approach is motivated by some of the drawbacks of concentration indicators, i.e. that the market shares of the top five or ten largest institutions are relatively easy to compute but are purely static. In addition, concentration indicators force the analyst to take a stand on the relevant geographic dimension of banking markets in a context where, as indicated above, deposit markets are more likely to extend to the euro area while loan markets may keep some of their local/national features. Finally, only the contestability of retail banking markets is linked to the concentration of the sector due to sunk costs associated with relationship banking -based on reputation and the role of brand names- and asymmetric information. This may not be true for wholesale markets.[16]

Tables 3 and 4 reveal that the level of concentration differs across countries, with a significantly lower concentration in Germany and Italy and, in general, in the larger countries.[17] However, one could characterise European banking markets by a high level of concentration within national boundaries that are scheduled to disappear. Conversely, Euroland is expected, at least at the beginning

Table 3
Indicators of concentration (%) – country analysis

	Total assets				Loans				Non-bank deposits			
	1985	1990	1995	1997	1985	1990	1995	1997	1985	1990	1995	1997
BE	48.0	48.0	54.0	57.0	54.0	58.0	61.0	66.0	62.0	67.0	62.0	64.0
DK	61.0	76.0	74.0	78.0	71.0	82.0	79.0	75.0	70.0	82.0	76.0	72.0
DE	n.a.	13.9	16.7	16.1	n.a.	13.5	13.8	13.7	n.a.	11.6	12.6	14.2
GR	82.1	83.3	75.7	71.0	93.2	89.7	80.8	77.0	89.2	87.7	83.0	79.6
FR	46.0	42.5	41.3	40.3	48.7	44.7	46.8	48.3	46.0	58.7	68.1	68.6
IE	47.5	44.2	44.4	40.7	47.7	42.9	47.5	46.8	62.6	43.7	52.6	50.2
IT	20.9	19.1	26.1	24.6	16.6	15.1	26.3	26.6	19.9	18.6	42.1	36.7
LU	26.8	n.a.	21.2	21.8	n.a.	n.a.	15.1	28.6	n.a.	n.a.	22.5	28.0
NL	69.3	73.4	76.1	79.4	67.1	76.6	78.5	80.6	85.0	79.5	81.9	84.2
AT	35.9	34.6	39.2	48.3	28.9	30.1	34.0	39.3	32.0	32.0	36.4	39.1
PT	61.0	58.0	74.0	80.0	60.0	57.0	73.0	75.0	64.0	62.0	76.0	79.0
FI	51.7	53.5	68.6	77.8	49.7	49.7	60.0	56.2	54.2	46.1	64.2	63.1
SE	60.2	70.0	85.9	89.7	62.6	64.9	90.1	87.8	58.0	61.4	84.3	86.9
UK	n.a.	n.a.	27.0	28.0	n.a.	n.a.	25.0	26.0	n.a.	n.a.	25.0	26.0

Source: National central banks and supervisory authorities, share of the 5 largest institutions in assets/liabilities held by credit institutions.

[16] Applied researchers have not generally been able to show a significant relationship between concentration and profits in banking, nor to identify the true geographic market associated with a given measure of concentration. Following Baumol's (1982) critique that competition depends in fine on the "contestability" of the market (i.e. on the absence of sunk costs), the "New" Industrial Organisation (NIO) literature has argued in favour of a set of tests, based on rigorous microeconomic foundations. In particular, the Rosse-Panzar test relies on the fact that an individual bank will respond differently to a change in costs, depending on whether the bank enjoys some monopoly power or instead is operating in a competitive market (see Schaffer (1994) for a survey).

[17] Table 3 is based on exhaustive information from Central Banks and Supervisory Authorities, while Table 4 is derived from the Fitch IBCA Bankscope CD-Rom (henceforth IBCA). The latter indicators diverge slightly from the former ones since the coverage is partial for small banks – which, however, only represent a small fraction of cumulative assets. They are presented here in order to derive an estimate of the EU-wide level of concentration (last row in each sub-table). See the footnotes to the tables for details. The most substantial divergence between the two tables arises in the United Kingdom, given that the international sector is not considered in IBCA.

Table 4

Indicators of concentration (%) – country analysis (1996)

Total assets

	C5			C10		
	All bks	All bks*	Univ. bks	All bks	All bks*	Univ. bks
BE	68.0	65.3	73.0	84.0	80.7	88.3
DK	77.6	72.3	89.7	92.9	86.6	99.2
DE	24.4	20.9	42.0	38.9	33.2	52.9
GR	83.1	74.8	n.s.	n.s.	n.s.	n.s.
ES	39.3	36.1	42.8	55.1	50.5	59.3
FR	38.2	36.0	49.7	53.4	50.3	60.8
IE	57.0	51.8	n.s.	94.2	85.6	n.s.
IT	34.3	30.9	40.5	50.8	45.8	57.3
LU	30.2	27.2	30.8	48.7	43.7	49.5
NL	62.8	61.1	80.2	83.0	80.7	95.0
AT	52.9	41.5	57.7	73.8	57.9	80.4
PT	61.5	57.0	71.7	84.9	78.7	95.3
FI	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
SE	73.8	70.2	90.9	93.9	89.2	n.s.
UK	50.6	49.0	72.0	65.7	63.7	83.5
EU11	11.8	10.8	16.3	19.3	17.6	25.7
EU15	10.1	9.2	14.6	16.9	15.4	23.3

Off-balance-sheet items

	C5			C10		
	All bks	All bks*	Univ. bks	All bks	All bks*	Univ. bks
BE	79.5	76.4	80.8	92.1	88.5	92.6
DK	85.1	79.2	92.6	93.4	87.0	99.9
DE	41.7	35.7	58.3	57.9	49.5	65.4
GR	85.0	76.5	n.s.	n.s.	n.s.	n.s.
ES	47.6	43.6	54.5	60.0	55.0	71.4
FR	51.9	48.9	65.0	62.0	58.4	73.4
IE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
IT	43.8	39.4	50.5	64.1	57.7	68.9
LU	9.7	8.8	9.7	14.9	13.4	14.9
NL	40.3	39.2	64.3	66.4	64.6	83.3
AT	57.6	45.2	61.5	77.8	61.0	83.1
PT	60.7	56.3	70.4	89.2	82.7	99.5
FI	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
SE	93.7	89.1	97.8	97.8	93.0	n.s.
UK	77.2	74.8	82.0	83.2	80.7	86.2
EU11	18.9	17.2	23.7	28.4	25.9	32.7
EU15	15.1	13.8	20.1	24.0	21.9	28.3

Loans

	C5			C10		
	All bks	All bks*	Univ. bks	All bks	All bks*	Univ. bks
BE	70.5	67.7	78.6	85.8	82.5	89.6
DK	76.4	71.1	89.1	94.9	88.4	99.7
DE	21.2	18.1	44.3	34.3	29.3	n.s.
GR	83.0	74.7	n.s.	n.s.	n.s.	n.s.
ES	34.5	31.7	37.8	49.7	45.6	55.3
FR	35.0	33.0	50.3	52.6	49.5	54.2
IE	65.3	59.4	n.s.	94.9	86.2	n.s.
IT	33.8	30.4	42.5	50.8	45.7	59.8
LU	26.0	23.3	27.1	52.2	46.9	54.5
NL	62.9	61.2	86.5	87.1	84.8	96.8
AT	44.9	35.2	51.9	66.5	52.2	76.9
PT	53.8	49.9	62.8	84.0	77.9	95.5
FI	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
SE	75.3	71.6	87.8	91.3	86.8	n.s.
UK	56.7	54.9	71.6	75.4	73.1	86.1
EU11	11.0	10.0	16.8	18.6	17.0	27.8
EU15	9.5	8.7	14.7	16.9	15.4	25.1

Securities

	C5			C10		
	All bks	All bks*	Univ. bks	All bks	All bks*	Univ. bks
BE	63.7	61.2	67.1	79.8	76.7	85.5
DK	79.2	73.7	90.4	87.1	81.2	98.3
DE	26.6	22.8	33.3	41.4	35.4	49.7
GR	86.3	77.6	n.s.	n.s.	n.s.	n.s.
ES	45.3	41.6	47.2	57.1	52.4	60.4
FR	40.2	37.8	49.2	56.0	52.7	65.3
IE	48.5	44.1	n.s.	98.3	89.3	n.s.
IT	29.1	26.2	32.2	44.7	40.3	48.5
LU	38.9	35.0	39.8	50.2	45.1	51.4
NL	68.4	66.6	84.9	86.7	84.3	97.4
AT	54.4	42.7	57.9	75.1	58.9	79.8
PT	60.7	56.2	75.6	77.3	71.7	92.7
FI	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
SE	77.9	74.0	93.0	98.2	93.3	n.s.
UK	45.3	44.0	77.5	57.2	55.5	82.6
EU11	11.4	10.4	14.1	18.4	16.8	21.5
EU15	9.8	8.9	12.8	15.5	14.1	19.6

Deposits

	C5			C10		
	All bks	All bks*	Univ. bks	All bks	All bks*	Univ. bks
BE	67.5	64.9	73.5	83.0	79.8	87.0
DK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
DE	29.3	25.0	40.2	41.3	35.3	44.5
GR	83.3	74.9	n.s.	n.s.	n.s.	n.s.
ES	36.7	33.6	37.4	50.2	46.1	53.1
FR	42.0	39.5	47.7	54.4	51.2	53.1
IE	49.7	45.2	n.s.	94.4	85.9	n.s.
IT	30.4	27.4	33.3	46.9	42.2	50.9
LU	35.6	32.0	35.8	50.9	45.7	51.2
NL	37.3	36.3	65.3	76.3	74.2	92.7
AT	45.3	35.5	48.5	70.4	55.2	75.4
PT	61.3	56.9	68.1	89.6	83.1	97.2
FI	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
SE	81.9	77.9	91.3	96.7	91.9	n.s.
UK	63.5	61.6	75.4	76.8	74.4	88.7
EU11	12.6	10.6	16.6	19.3	16.2	23.4
EU15	11.0	9.3	14.7	18.5	15.6	21.8

Notes:

n.a.: non available; n.s.: non-significant due to the low coverage of the country in the database. The concentration indicators (C5/C10: market share of the 5/10 largest institutions) are computed using data from Fitch-IBCA for banks with total assets above Ecu 1 billion (indicators "all banks" and "universal banks"), as well as additional information indicating the share of banks with assets above Ecu 1 billion in the total assets of the whole banking sector. The latter information was obtained from National Central Banks (indicators "all banks*").

Formally: "all banks" or "univ. banks" = $\Sigma^{5 \text{ or } 10}_{i=1} Ai / \Sigma^{N1}_{i=1} Ai$, where Ai is the balance-sheet item (total assets, deposits, loans,...) of bank i and $N1$ is the number of institutions with total assets above Ecu 1bn as recorded by IBCA.

"All banks*" = "All banks" x $\Sigma^{N2}_{i=1} Ai / \Sigma^{N}_{i=1} Ai$, where N is the total number of institutions and $N2$ the total number of institutions with assets above Ecu 1 bn.

Sources: Fitch-IBCA Bankscope CD-ROM and author's calculations.

of EMU, to follow the rule of lower concentration in the larger areas. As indicated in Table 4a, based on individual bank data from IBCA, an upper limit for the level of concentration of assets, loans and deposits, measured by the share of the assets of the five largest EU credit institutions in the total cumulative assets of all EU institutions was between 10 and 11% in 1996 (between 16 and 17% for universal banks[18]). This should be compared to 18% in the United States in 1993 (Ettin (1995)). Although one should remain cautious when using figures derived from different sources, this reveals that there may exist some scope for consolidation in Europe.[19] Such a movement towards EU global players also appears in Table 3, since in most countries concentration increased between 1990 and 1997 (and, in many cases, continuously since 1985). In addition, the contestability of retail banking has certainly increased. If, as indicated above, technological change has played a major role in this evolution, EMU will reinforce these trends.

Regarding off-balance-sheet operations and interbank lending, which are more contestable, concentration indicators may explain the incentives for institutions to evolve or enter other national markets. As indicated in Table 4, concentration in off-balance-sheet operations and interbank lending/borrowing also appears to be more pronounced than for other activities. One may therefore anticipate some consolidation in that area. It could, for instance, be argued that an efficient interbank market rarely has more than 10 prominent market makers. In that case, the start of EMU would lead to competitive pressures towards a restricted number of EU-wide money market makers.

On the other hand, to assess the effective level of competition, we implement more formal tests of contestability. The "New Industrial Organisation" literature has stressed the need to test competition by measuring the elasticity of bank revenues to changes in costs, on the grounds that, for monopolistic banking markets, revenues respond less than proportionately to changes in costs. A possible drawback is that these tests are based on reduced-form equations, so that they cannot cope with the regime shift associated with EMU. Consequently, they only provide a measure of the current level of competition in the EU banking system and a benchmark against which the effects of EMU can be tested. Molyneux et alia (1994) conclude that during the period 1986-89, banks in Germany, the United Kingdom, France and Spain earned revenues as if in monopolistic competition, while in the case of Italy, monopoly power is not rejected. For Finland, Vesala (1995) concludes that deregulation triggered a short period of price war among banks but banks later reverted to a kind of monopolistic competition. For the more recent period, De Bandt and Davis (1998) use a sample of banks in France, Germany and Italy during the period 1992-96 and conclude that competition increased during the 1990s, especially in Italy, but that banking markets are still characterised by monopolistic competition.

In conclusion it might be noted that the monitoring of concentration at the EU level and of its impact on competition, through the definition of the appropriate market segments will certainly be a crucial issue in the years to come.

Strategic responses by banks

Against the background of an increase in competition ushered in by EMU, it is important to investigate how banks will react to potential competition. It is not obvious that EMU will induce concentration of all banking institutions. Given the existence of asymmetric information, one possible scenario is therefore the coexistence of a few Europe-based global players, alongside smaller institutions, specialised either in given product groups or in specific regions. It is difficult to predict if, after EMU, banks will prefer to: (i) specialise in specific "niches", involving particular skills; (ii) build new alliances with universal banks either for strategic motives, with a view to limiting entry and softening competition in particular markets, or for technological reasons, mainly to use more efficiently existing banking networks; or (iii) accelerate the movement of concentration to reach a

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[18] Universal banks are defined as commercial, cooperative and savings banks.

[19] Such a movement should be even more pronounced if one takes into account the effects of competition policy which is traditionally more severe in the United States than in Europe.

critical size through mergers and acquisition. There is no dominant model in our view. On the one hand, the experience of the Single Market shows that the last two choices are the most likely to be fostered by EMU. But the motivation for the current wave of mergers in the different EU banking systems may be partly independent of EMU,[20] and new types of alliances may also be fostered by technological change, as indicated above. On the other hand, if there is evidence that successful mergers are a consequence of cost-cutting rather than revenue enhancing strategies, banks may face a dilemma regarding potential returns to scale gains and legal obstacles to restructuring (in particular regarding employment status). The final question is therefore whether EMU will induce a significant development of cross-border mergers. If the motivations are not different from mergers at the national level, the need to accommodate national differences of legal and accounting systems may increase the risk of duplication of costs in the case of cross-border mergers. It is probable that, at least in the short run, the first step will be a consolidation of the banking systems in the smaller countries.[21]

3.2 EMU and the performance of the banking industry

The analysis of the overall effect of EMU on banking performance should distinguish between the short and medium-run effects of EMU on banking profitability. In the short run, EMU will have a limited impact on banks' costs, due to the need to complete the changeover to the euro, while in the medium term, EMU will affect banks' profits, as well as its distribution across institutions.

3.2.1 One-off costs associated with the changeover

In the short run, banks will have to face the one-off costs of changeover. But experts do not fully agree about the importance of those costs. According to estimates by the Fédération Bancaire Européenne, changeover costs, excluding adaptation of national payment systems, would amount to ECU 8-10 billion, or 2% of annual operating costs for three to four years. On the other hand, for firms active in securities business, switchover costs would appear to be small and amount to an average of 0.06% of total operating costs of financial institutions (ISMA (1997)). Such a difference may be explained by the fact that costs are higher for institutions specialised at the retail level, since half of these costs would come from the adaptation of information technology, and the need to offer to retail customers, during services in euro and in national currency, Stage 3A. Securities firms already operate in a multi-currency environment. Various estimates tend to show that smaller and/or more specialised institutions may not always be disadvantaged, although their lower cost of organisation will, in some cases, be more than offset by limited expertise. Adequate planning and timing of the changeover seems to make a difference, since some changes are due to be made independently of the occurrence of EMU, in particular preparations for the year 2000.

3.2.2 Medium-term effects on profitability

From a structural point of view, EMU will create a new environment, which will have positive effects on the competitiveness of EU institutions. It may, at the same time, also increase disparities among institutions.

EMU will have positive effects on the competitiveness of banks. First, the move to Stage Three will help reveal organisational deficiencies at the level of institutions, the solution of which will, in the end, prove decisive in improving the competitiveness of European institutions.

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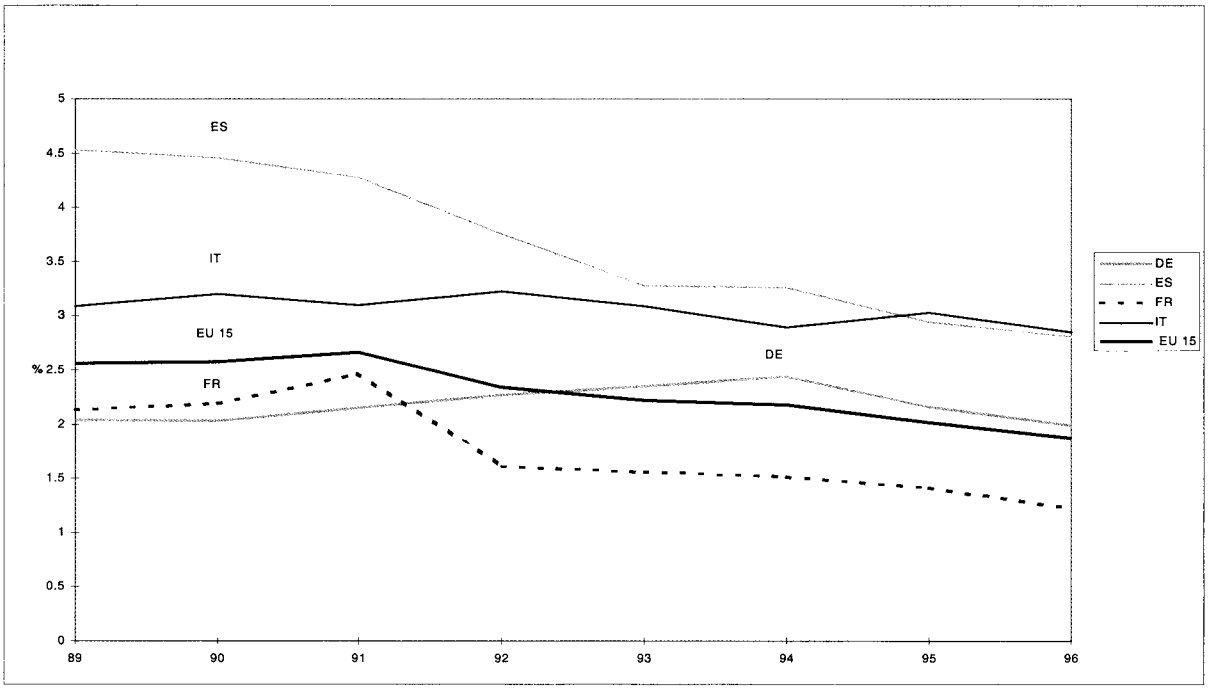
[20] Small banks with a significant presence in local markets have, so far, not been concerned by the rise in M&As.

[21] Recently observed cross-border mergers in Europe (e.g. the merger between Fortis (Netherlands) and Générale de Banque (Belgium), the purchase of BBL (Belgium) by ING (Netherlands) and the merger between Merita (Finland) and Nordbanken (Sweden)) occurred in countries with a relatively more concentrated banking sector and less opportunities for national alliances. See also White (1998) for M&As in banking in 1997/98. The planned purchase of the US investment bank Bankers Trust by Deutsche Bank in November 1998 is no exception to that principle, as it expresses a diversification strategy, rather than a search for scale economies within the euro area.

Chart 1
Bank intermediation margin*
All universal banks



* Net interest revenue/total earning assets.

Sources: Fitch IBCA Bankscope CD-ROM and author's calculations.

Second, from a more macroeconomic point of view, the introduction of a Single Currency in the place of multiple currencies will reduce transaction costs and eliminate the previous foreign exchange risk among the currencies of the euro area. Hence, the commercial and financial unification of the European Union will be enhanced and cross-border trade in goods and services, including financial services, stimulated. This should complement the growth effect associated with the frontier-opening process of the Single Market. In addition, the priority given to price stability in Stage Three should provide an enhanced environment for the production of financial services. Less volatile inflation and interest rates are good for banks' customers, and hence for banks. They will also benefit from higher expected economic growth via lower interest rates supported by a strong euro. Thus, EMU may increase the competitiveness of the whole European banking industry, and in particular of the international banking groups.

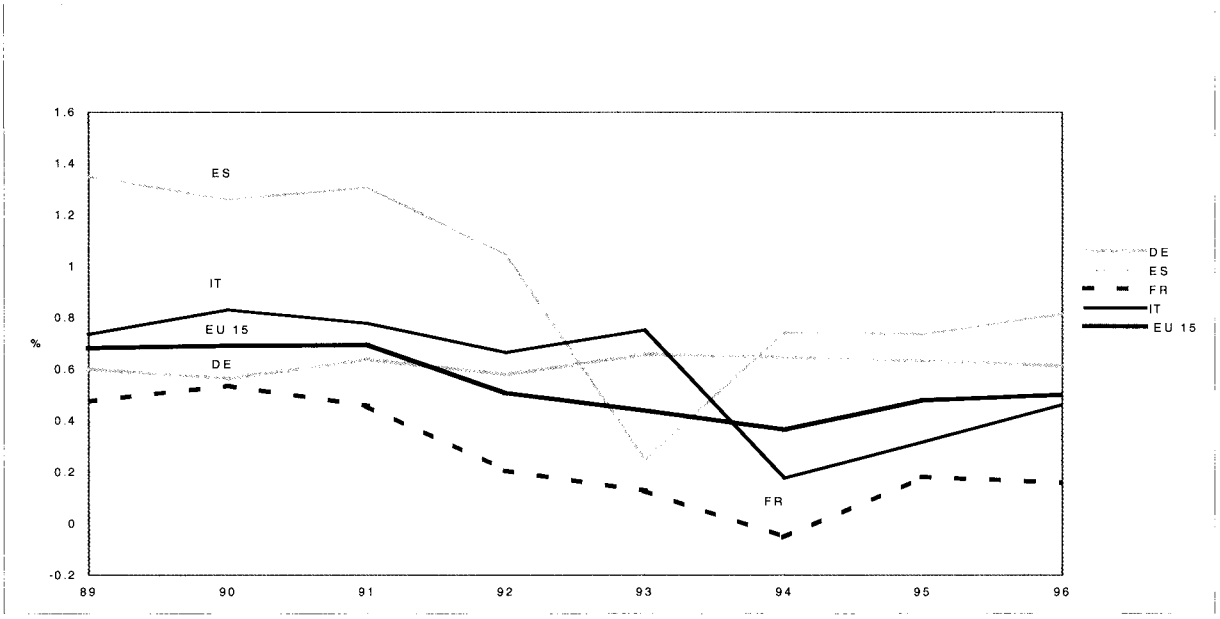
For EU institutions in general, EMU will take place in an environment where intermediation margins and profitability are lower than at the end of the 1980s, marking a reallocation of margins from banks to customers. As indicated in Charts 1 and 2, which are based on aggregate data from IBCA, there is a clear convergence across EU countries and the movement was particularly pronounced in Spain, a country enjoying above average margins in the early 1990s. The improvement in profitability in 1995-96 partly attenuated this movement in connection with the satisfactory performance of securities markets.[22]

However, EMU may not affect all institutions equally. One usual prediction of increasing competition is that some banks will lose and others will gain, as EMU will have the effect of reallocating

[22] Indicators are computed on the sample of banks provided by IBCA (see methodological notes to Table 4 for details), using "ratios of average", i.e. dividing the cumulative sum of profits across banks by the cumulative sum of assets. Formally $(\Sigma^n{}_i P_i)/(\Sigma^n{}_i A_i)$, where P_i is the profit, and A_i the total assets of bank i and n the number of banks.

intermediation margins among banks, which will therefore have to focus even more on non-interest income and fee-generating activities. All banks are not equally prepared to make this transition. The final result might therefore be to introduce more diversity across banks in terms of profitability. Increasing competition will in the short run reduce rents, so that the most X-inefficient banks will show a lower level of profitability. In the medium/long run, this will lead to a restructuring of the banking industry.

Chart 2
Bank profitability*
All universal banks



* Profit before tax/total assets.

Sources: Fitch IBCA Bankscope CD-ROM and author's calculations.

As a test exercise of the possible effects of EMU, it may be worthwhile to consider the distribution of profitability across institutions during the period of implementation of the Single Market programme. Using data from IBCA, we investigate differences in profitability across banks. Profitability is measured by the return on asset (ROAA) or equity (ROAE) and we distinguish between three classes of banks: large banks with total assets above ECU 5 billion, medium-sized banks with total assets between ECU 1 and 5 billion, and small banks (assets below ECU 1 billion). Two separate years are considered, 1994 (Table 5) and 1996 (Table 6), in order to correct for the possible influence of business cycle conditions. We test different hypotheses for our various sub-samples of banks.[23] We first compare, for each country sample, the average profitability to its standard deviation (both unweighted). If the population is normally distibuted, 95% of banks should have their profitability

[23] As we focus on the distribution across institutions the profitability of bank i is P_i/A_i using the same notation as in the preceding footnote. The unweighted average is $(1/n)\Sigma^n{}_i P_i/A_i$.

Table 5

Profitability indicators in 1994

All banks	Total				Banks / < ECU 1 bn				Banks / ECU 1 - 5 bn						Banks / > ECU 5 bn					
	ROAA		ROAE		ROAA		ROAE		ROAA			ROAE			ROAA			ROAE		
	AV	SD	AV	SD	AV	SD	AV	SD	AV	SD	F1	AV	SD	F1	AV	SD	F2	AV	SD	F2
BE	0.42	0.80	7.90	21.30	0.48	0.95	5.01	10.25	0.35	0.38	**	8.35	9.74		0.22	0.13	**	21.95	51.37	
DK	0.54	1.89	2.89	13.44	0.54	1.98	3.01	14.21	0.87	1.68		0.92	10.32		0.16	0.06	**	3.64	0.70	**
DE	0.33	0.60	6.74	5.70	0.33	0.65	6.57	5.49	0.33	0.42	**	7.50	6.92		0.24	0.19	**	6.80*	4.03	**
ES	0.59	2.11	7.42	18.82	0.47	2.74	3.43	14.11	0.74	1.38	**	8.70	15.99		0.65	0.45	**	17.55	30.93	
FR	0.21	4.73	–2.93	46.59	0.25	6.19	–0.24	42.31	0.19	1.34	**	–8.38	57.51		0.02	0.90	**	–1.10	29.17	**
IT	0.33	0.87	1.82	13.34	0.49	0.97	3.26	13.16	0.20	0.76	*	0.86	13.07		0.08	0.56	**	–1.14	14.18	
LU	0.67	1.29	9.76	9.02	0.75	1.49	7.49	8.24	0.60	1.08	*	12.28	10.20		0.46	0.30	**	4.73**	6.09	**
NL	0.63	1.49	8.82	9.32	0.46	0.62	7.30	7.29	0.35	0.46		7.94	6.37		1.83	3.77		17.04	16.99	
AT	0.40	2.69	6.23	21.96	0.49	3.73	4.35	29.10	0.33	0.34	**	8.00	9.01	**	0.22	0.08	**	9.26	10.05	
PT	0.23	1.56	4.72	7.59	–0.01	2.27	1.66	8.15	0.30	0.49	**	5.36	5.85		0.69	0.33		11.10	5.45	
UK	0.75	1.60	6.89	11.20	0.95	1.93	7.22	10.15	0.55	0.73	**	7.60	11.32		0.23	0.50	**	4.25	14.96	
EU 15	0.38	2.29	5.04	20.34	0.42	2.67	5.24	17.15	0.31	1.29	**	3.81	27.44		0.27	0.74		6.60	21.12	**

Universal banks	Total				Banks / < ECU 1 bn				Banks / ECU 1 - 5 bn						Banks / > ECU 5 bn					
	ROAA		ROAE		ROAA		ROAE		ROAA			ROAE			ROAA			ROAE		
	AV	SD	AV	SD	AV	SD	AV	SD	AV	SD	F1	AV	SD	F1	AV	SD	F2	AV	SD	F2
BE	0.37	0.80	5.97	10.51	0.40	1.00	4.43	11.69	0.36	0.39	**	8.23	10.01		0.25	0.12	**	8.48	3.75	**
DK	0.50	1.93	2.40	13.39	0.54	1.99	2.64	13.61	–0.25	0.93		–4.93	15.09		0.21	0.05	**	3.72	0.79	**
DE	0.33	0.55	6.79	5.73	0.32	0.58	6.61	5.44	0.34	0.43	**	7.63	7.03		0.30	0.20	**	7.06	4.63	**
ES	0.53	2.06	7.32	19.21	0.43	2.75	3.38	14.25	0.63	0.96	**	8.89	16.47		0.65	0.45	**	17.72	32.61	
FR	0.12	4.88	–1.51	37.25	0.12	6.60	0.24	28.36	0.12	1.06	**	–5.06	50.63		0.13	0.41	**	2.06	14.36	**
IT	0.35	0.89	1.94	13.89	0.52	0.95	3.61	12.94	0.19	0.81	*	0.69	14.44		0.02	0.61	**	–2.40	15.67	
LU	0.48	0.97	9.62	8.98	0.54	1.24	7.01	7.81	0.38	0.39	**	12.44	10.52		0.46	0.30		14.73**	6.09	**
NL	0.39	0.54	8.58	9.90	0.47	0.66	7.29	7.29	0.25	0.17	**	7.09	6.53		0.26	0.22		19.01	21.49	
AT	0.70	2.12	8.49	15.06	0.99	2.78	8.58	18.03	0.36	0.39	**	7.98	10.59	**	0.22	0.08	**	9.26	10.05	
PT	0.11	1.61	4.07	7.72	–0.17	2.27	0.65	7.42	0.17	0.45	**	4.71	6.51		0.69	0.33		11.10	5.45	
UK	0.43	1.13	6.44	10.18	0.48	1.40	5.35	9.16	0.43	0.55	**	8.48	11.23		0.26	0.49		7.18	12.41	
EU 15	0.33	2.01	5.35	16.46	0.34	2.36	5.35	12.67	0.30	0.72	**	4.77	24.81		0.29	0.46	**	7.13	16.38	**

Notes: Universal banks = commercial banks + savings banks + cooperative banks (countries where the coverage by IBCA is lower than 30 banks are not exhibited). ROAA = return on average asset. ROAE = return on average equity. AV = mean (unweighted)[*:significantly greater than zero at 10% level; **:significantly greater than zero at 5% level]. SD = standard deviation (unweighted). F1 = Fisher one-sided test of difference of variances between banks with assets < ECU 1 bn and assets included in ECU [1 - 5 bn]. F2 = idem as F1 for banks in assets size ECU [1 - 5 bn] and > ECU 5 bn. * = smaller banks have significantly higher variance at 10%. ** = smaller banks have significantly higher variance at 5%.

Sources: Fitch-IBCA Bankscope CD-ROM (unconsolidated accounts) and author's calculations.

Table 6

Profitability indicators in 1996

All banks	Total				Banks / < ECU 1 bn				Banks / ECU 1 - 5 bn						Banks / > ECU 5 bn					
	ROAA		ROAE		ROAA		ROAE		ROAA			ROAE			ROAA			ROAE		
	AV	SD	AV	SD	AV	SD	AV	SD	AV	SD	F1	AV	SD	F1	AV	SD	F2	AV	SD	F2
BE	0.96	3.16	8.93	13.77	0.97	3.15	6.60	9.39	1.33	4.00		11.81	7.81	**	0.21	0.32	**	19.31	32.53	
DK	1.51	1.54	10.47	8.19	1.50	1.36	10.33	8.48	2.78	4.26		11.29**	2.30		0.69**	0.31	**	12.55**	4.68	
DE	0.30	1.34	6.80	4.97	0.31	1.49	6.73	4.73	0.29	0.34	**	6.96	6.05		0.24	0.20	**	7.51	4.88	**
ES	0.98	1.73	10.06	9.76	1.05	2.11	9.59	9.94	0.98	1.18	**	10.65	11.09		0.70*	0.42	**	10.80**	4.89	**
FR	0.10	3.48	1.52	44.05	0.07	4.41	4.04	46.27	0.15	1.65	**	–2.80	46.82		0.07	0.71	**	0.57	17.45	**
IT	1.29	2.31	9.26	14.55	1.57	2.51	11.63	6.65	0.43	0.50	**	4.55	6.48		0.06	1.26		–6.85	45.96	
LU	0.64	1.19	10.70	8.70	0.76	1.50	8.25	7.60	0.42	0.30	**	14.26	10.16		0.54*	0.30		14.91**	4.23	**
NL	2.03	3.95	9.61	6.10	1.85	3.80	8.60	7.13	1.49	3.39		10.44**	4.39	**	0.37	0.54		12.23**	2.76	
AT	0.65	1.78	8.92	12.77	0.93	2.33	10.14	16.54	0.30*	0.16	**	7.04*	4.23		0.24**	0.08	**	8.09**	3.49	
UK	1.70	4.99	11.34	15.78	1.87	5.76	9.91	16.30	1.60	2.76	**	14.21	14.63		0.48	0.47	**	15.80	13.02	
EU 11	0.59	2.27	7.25	21.42	0.66	2.55	7.95	20.73	0.41	1.28	**	5.60	22.90		0.34	1.29		4.90	23.38	
EU 15	0.69	2.45	7.70	20.66	0.78	2.74	8.21	19.94	0.51	1.50	**	6.28	22.44		0.38	1.22	**	6.44	22.49	

Universal banks	Total				Banks / < ECU 1 bn				Banks / ECU 1 - 5 bn						Banks / > ECU 5 bn					
	ROAA		ROAE		ROAA		ROAE		ROAA			ROAE			ROAA			ROAE		
	AV	SD	AV	SD	AV	SD	AV	SD	AV	SD	F1	AV	SD	F1	AV	SD	F2	AV	SD	F2
BE	0.58	1.09	8.20	9.45	0.69	1.33	6.37	9.64	0.46	0.34	**	12.31	8.03		0.24	0.35		10.15	8.98	
DK	1.42	1.06	10.35	7.98	1.45	1.07	10.18	8.12	0.81**	0.24	**	11.83**	1.64	**	0.90**	0.21		15.02**	3.54	
DE	0.31	1.38	6.77	4.82	0.31	1.51	6.75	4.60	0.29	0.35	**	6.88	6.05		0.27**	0.10	**	6.66**	1.96	**
ES	0.96	1.73	10.19	9.93	1.04	2.14	9.62	10.11	0.91	1.01	**	10.67	11.20		0.74*	0.43	**	11.78**	3.94	**
FR	–0.12	3.54	1.06	41.80	–0.30	4.73	2.17	48.27	0.07	1.34	**	–1.08	37.99	**	0.04	0.80	**	2.84	10.28	**
IT	1.36	2.35	9.77	14.65	1.60	2.53	11.84	6.43	0.53	0.31	**	5.98*	3.08	**	0.00	1.39		–9.56	50.63	
LU	0.45	0.52	10.83	8.70	0.44	0.64	8.09	7.42	0.42	0.30	**	14.26	10.16		0.54*	0.30		14.91**	4.23	**
NL	1.11	2.35	7.93	5.39	0.89	1.12	6.77	5.90	0.41*	0.23	**	8.45**	3.97		0.32	0.57		11.95**	3.16	
AT	0.71	1.91	9.12	13.50	0.96	2.38	10.49	16.73	0.30**	0.13	**	6.15**	2.82	**	0.24*	0.08	*	8.09**	3.49	
UK	1.36	4.33	11.06	10.77	1.63	5.10	10.00	10.40	0.63	0.60	**	11.30	12.05		0.83	0.56		20.00**	7.71	
EU 11	0.54	2.03	7.38	20.07	0.60	2.29	7.96	19.89	0.35	0.78	**	6.11	19.09		0.35	1.34		4.43	24.72	
EU 15	0.61	2.07	7.71	19.39	0.69	2.32	8.16	19.09	0.37	0.78	**	6.42	18.92		0.41	1.29		6.00	24.09	

Notes and sources: See Table 5.

appears that in 1994 and 1996, profits were significantly positive only for the largest banks in Germany while it was also the case in 1996 for medium-sized and large banks in Denmark and Austria. Large banks in Belgium experienced significantly positive profits in 1994 only, while Netherlands saw an improvement in the profitability of medium-sized as well as large banks between 1994 and 1996. In Spain, the improvement in 1996 was limited to large banks. Actually, in many cases, the distribution of banks' profitability is not normally distributed, so that the high value of the standard deviation/averages ratio measures the high dispersion of profits among banks. We study, then, more precisely the dispersion of profitability across classes of banks by comparing the standard deviation of profits between small and medium sized banks (Column F1) as well as between medium-sized and large banks (Column F2) using a F-test. It appears that, in most countries, the variability of returns was statistically decreasing across size classes of banks for most countries, with the highest dispersion among banks with assets below ECU 1 billion. It is not clear, however, whether such a result reflects the fact that small banks remained sheltered from competition (i.e. entry barriers enabled them to survive even with a low profitability), or signals more structural problems of lower efficiency of some small banks.[24] Returns on assets or equity, which are more significantly positive for large banks, may tend to favour the second hypothesis. One can therefore expect EMU to further increase the variability of profits across institutions and to foster restructuring of some segments of the market.

4. Conclusion

EMU will certainly have a major impact on the European banking system. Admittedly, banking systems in many countries are experiencing a restructuring phase in response to worldwide trends affecting the industry. However, the single monetary policy will generate new activities, in particular in connection with the emergence of larger and deeper financial markets. This will require changes in the strategic focus of banks operating in the euro area. In addition, competition is likely to increase significantly with the single currency, as one of the major obstacles to financial integration will disappear, although retail banking markets will keep, at least at the beginning of EMU, many of their "local" features, in particular those due to tax differences.

Market participants are adapting their accounting and operational systems and can now define their strategies. One realistic scenario is therefore that the final impact of EMU will be to increase the competitiveness of banks in the Single Currency area and to favour the emergence of some large European-based global banking groups, while, at the same time, smaller institutions may develop profitable "niches". Provided that the supply of financial services is adequately priced ex ante (this would require that not all banks decide to invest in the same sectors and that banks do not lend imprudently to new customers), successful financial institutions will soon reap the benefits of EMU.

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[24] See Davis and Salo (1998).

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