

CAPITAL MARKETS AND FINANCIAL INTEGRATION IN EUROPE¹

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Abstract – This paper describes the scope, the findings and the future initiatives of the ECB-CFS research network on “Capital Markets and Financial Integration in Europe”. The ECB-CFS Network aims at stimulating top-level and policy-relevant research on the structure and integration of the European financial system and its linkages with the United States and Japan. We report the main results of the first two years of its activity, along the five priority areas: 1) bank competition and the geographical scope of banking; 2) European bond markets; 3) European securities settlement systems; 4) the emergence and evolution of new markets in Europe (in particular start-up financing markets); and 5) international portfolio choices and asset market linkages between Europe, the United States and Japan. We then present the additional research priorities for the next three years of the network, which focus on the financial integration and development of the New Member States in the European Union and of candidate countries, the interaction between financial integration and financial stability, and the relationship between financial system development and economic growth.

¹ Any views expressed in this paper are the authors' only, and do not necessarily reflect those of the European Central Bank or the Eurosystem.

1. Introduction

Capital market development and financial integration are of paramount importance for the European economy. For example, at the 2000 Lisbon Council they were included in the agenda intended to make the European Union the most competitive economy by 2010 (European Commission, 2000). The links between the size of the financial system and the level of economic development are well-documented (King and Levine, 1993). Moreover, increased financial integration, by reducing the cost of capital, will allow for a better allocation of resources. This may ultimately lead to increased economic performance. A study for the European Commission, for example, estimates the potential impact of financial integration to be a 1% increase in EU GDP growth (Giannetti, Guiso, Padula and Pagano, 2002). Finally, the transformation of the financial system can have an impact on the stability of the system itself, with possible consequences on the whole economy (Padoa-Schioppa, 2003).

It should therefore come as no surprise that European political and monetary authorities have a strong interest in capital markets and financial integration. European institutions have taken several initiatives to foster integration and development of the euro area capital markets. The most well-known of such initiatives is certainly the Financial Services Action Plan (FSAP). The European Commission launched the FSAP in 1999 with the explicit objective of actively promoting (and eventually achieving) the full integration of European financial markets, by providing homogeneous infrastructures and ensuring a level playing field for financial operators.

The European Central Bank (ECB) has also taken a proactive stance in this matter. The ECB is interested in the transformation of the European financial system for several reasons. First, capital markets represent one of the main channels through which monetary policy is transmitted. Second, payment and settlement systems play an important role in evolving financial systems. Third, structural changes in financial markets may in the transition be associated with risks to financial stability.

It is against this background that in 2002 the ECB and the Center for Financial Studies (CFS) established the ECB-CFS research network on "Capital Markets and Financial Integration in Europe". The network aims at stimulating top-level and policy-relevant research on the structure and integration of the European financial system and its linkages with the United States and Japan. It was launched in an effort to better understand the main processes under way in the transition from many different financial systems into a single one, to assess the quality with which the financial sector fulfils its functions, to analyse the relationships between these developments and those taking place in other major financial systems and to examine the implications of all these factors for the economy as a whole. While both empirical and theoretical research was envisaged, relevance for policy debates constituted another parameter for the work this initiative wanted to promote. The network was first

established for a period of two years, which expired in April 2004. It has now been renewed for another three years, until end of 2007.

Within a relatively short period of time the network formed a coherent and growing group of researchers interested in the integration and development of European financial markets. Active contributors to this group have regularly presented the results of their research in the events organised and sponsored by the network.² Academic researchers, researchers from the main policy institutions and policy makers participated actively in the workshops, either by presenting research results or through speeches and in policy panels. The network also stimulated a new research field on securities settlement systems, an area of high policy relevance that had not attracted much interest in the research community beforehand.

This paper brings together the main findings of the work done under the network and illustrates the issues to be tackled in the forthcoming years. It is structured as follows. The next section will describe in greater detail the organisation and the structure of the ECB-CFS research network. Section 2 will highlight the most interesting results and policy-relevant conclusions from the research papers presented under the auspices of the network. Section 3 presents the research agenda for the next phase of the network by discussing three new priority areas. Section 4 concludes.

2. Purpose of the Network and Main Priority Areas

In 1999, the European Commission presented a framework for action in the financial services industry to help achieve the benefits of the Single Market in financial services. The formulated objectives of this Financial Services Action Plan (FSAP) are to ensure a single EU market for wholesale financial services, guarantee open and secure retail markets and modern prudential rules and supervision. The Commission proposed 42 measures and a timetable for their adoption with deadline 2005. In 2002, the date of creation of the ECB-CFS research network, the Commission reported that “Recent progress in the Council and the European Parliament on a number of proposals demonstrate that the political commitment to implement the FSAP on time is beginning to be translated into firm political agreements... Even if not all barriers have been removed, significant and irreversible progress towards a strong integrated European financial sector by 2005 is achievable – it is a prize that is now within our grasp”.

² Further information on the network and papers of past workshops can be downloaded from the network website, www.eu-financial-system.org.

Against the background of the FSAP, the ECB-CFS research network was intended to stimulate research in all areas relevant for the functioning of the European financial system. The work can be decomposed in three distinct, but related, broad areas of research: (i) European financial integration, (ii) financial system structures in Europe and (iii) financial linkages between the euro area/European Union (EU), the United States and Japan. A detailed description of key research areas was developed and made publicly available in the network “roadmap”.³

To concentrate research resources and ensure policy focus, a limited number of areas within the three main broad research fields were initially given top priority for the first two years: 1) bank competition and the geographical scope of banking; 2) European bond markets; 3) European securities settlement systems; 4) the emergence and evolution of new markets in Europe (in particular start-up financing markets); and 5) international portfolio choices and asset market linkages between Europe, the United States and Japan.

Work on *bank competition and the geographical scope of banking* has been given priority because – despite the adoption of the 'single passport' principle – the euro area is still experiencing relatively few cross-border mergers compared with domestic consolidation and relatively limited cross-border corporate lending. Also supervisory structures and regulatory approaches pertaining to the banking sector underwent profound reforms whose effects should be analysed.

European bond markets have undergone rapid changes in the past few years, including the development of euro area-wide secondary market trading platforms, as well as the development of a more significant corporate bond market. These changes are so recent that their main sources and their wider implications are not widely understood. They may have important practical consequences, not least because bond markets constitute one key market for the conduct of monetary policy by central banks.

Despite the importance of *securities settlement systems* for financial markets, research was only at an embryonic stage when the network was set up. Moreover, the fragmentation of the European securities settlement industry, resulting in high cross-border securities trading costs, may well constitute the single most important obstacle to further securities market integration (see Giovannini Group 2001, 2003). The rapid structural change in the European securities settlement industry and the very limited research available on these topics when the network was created made work in this area particularly important and relevant to policy-makers.

The area of *new markets* also received a very high priority. In 1998, the Commission (EC 1998) reckoned that “fewer technology-based enterprises are created in Europe and their prospects for

³ The roadmap is publicly available here: www.eu-financial-system.org/roadmap.pdf.

growth are inhibited. Also, venture capital is underdeveloped in many European countries compared with the USA, in particular in the field of seed and early stage finance”. This highlighted the importance of the availability of a wide range of funding and investment possibilities for innovations and risk sharing – and hence ultimately for growth and welfare.

Priority was also given to *international portfolio choices and asset market linkages between Europe, the United States and Japan*, as the past few decades have brought an enormous expansion of international capital flows. As a consequence, global financial linkages have strengthened. While their impact on economies is far larger than traditional trade linkages, for example, knowledge about the driving factors behind international financial flows is still relatively limited.

3. Results of the Network

This section reviews a selection of the main policy relevant results of the work done in the context of the network, going through its five priority areas, as formulated in the network “roadmap”. We start each of the following sub-sections with a paragraph summarising the key findings. We then elaborate on these findings in more detail.

3.1. Bank competition and the geographical scope of banking

Results reveal that, first, integration is not very advanced in many retail banking markets. Second, some of the inherent characteristics of traditional loan and deposit business constrain the cross-border expansion of commercial banking, even in a common currency area. Hence, the implementation of some policies to foster cross-border integration of retail banking may be ineffective. Third, bank competition does not need to cause instability, but is likely to spur growth in developed countries, as more competition in the banking sector induces financially dependent firms to grow more. Fourth, theoretical research suggests that supervisory structures may not be neutral towards further European banking integration. Finally, a stronger role of area-wide competition policies could be beneficial for further banking integration.

As shown by Baele et.al. (2004), the degree of integration varies in the different segments of the retail banking markets. In the corporate lending market, following significant convergence in the run-up of EMU, short-term and medium- and long-term lending markets are still segmented, but even more so for short-term lending (see Figure 1). Households mortgage loan rates seem to have become more

uniform across countries, while the consumer credit segment remains highly fragmented (see Figure 2).

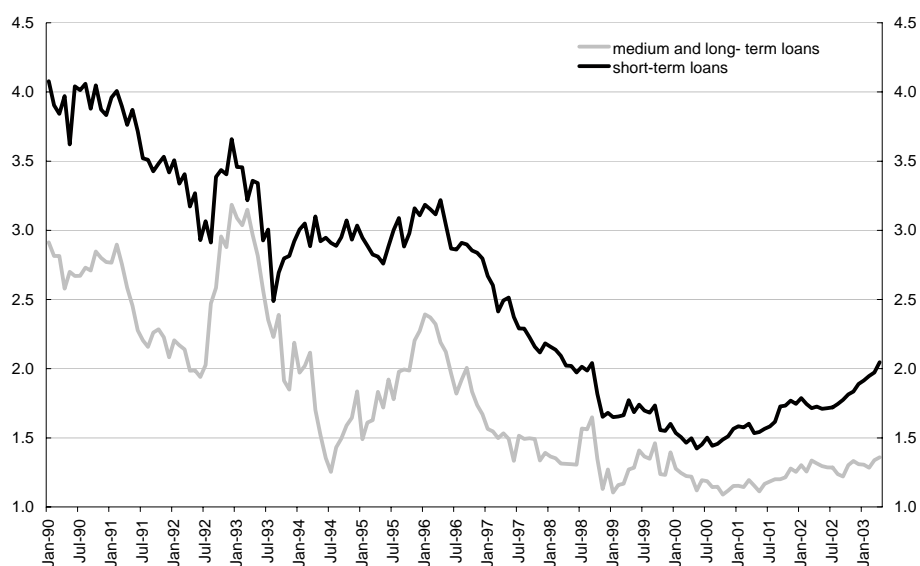


Figure 1 – Cross-sectional standard deviation of interest rates on short-term and medium- and long-term loans to enterprises. *Source: ECB.*

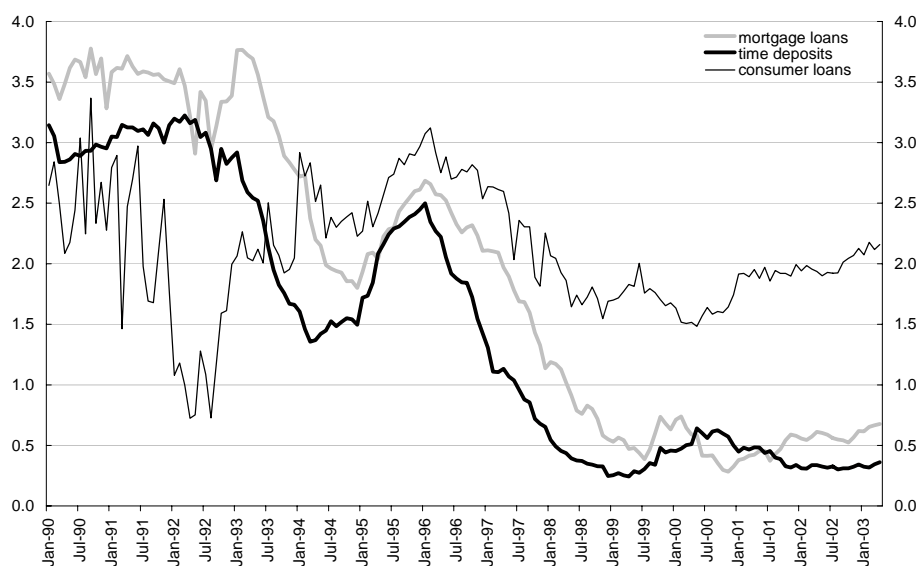


Figure 2 – Cross-sectional standard deviation of interest rates on consumer and mortgage loans and time deposits. *Source: ECB.*

This price-based evidence is confirmed by quantity measures of cross-border activities within the euro area. Cross-border lending is still very limited in the retail-banking segment, as shown in Figure 3 and Hartmann, Maddaloni and Manganelli (2003).

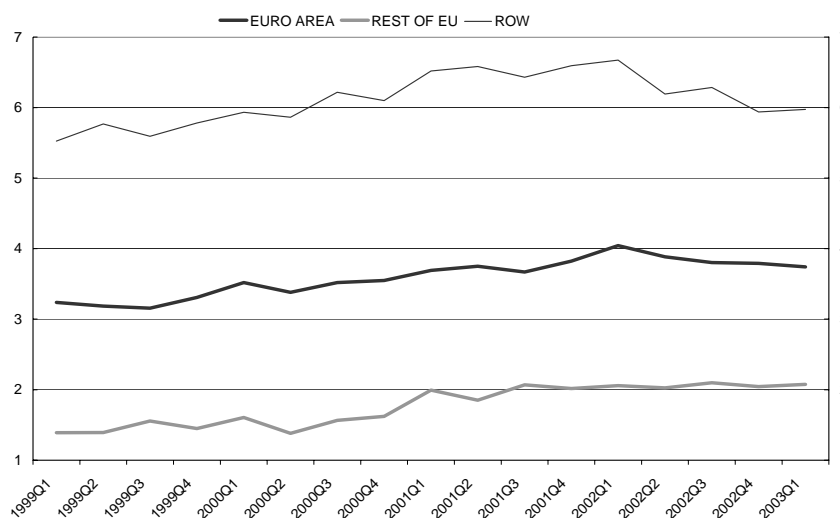


Figure 3 – Cross-border loans (as a percent of domestic loans). *Source: ECB.*

The persistence in home biases in lending and borrowing to non-financial corporations and households is confirmed by evidence from Berger et. al. (2002) that large multinational corporations still prefer small local institutions to global financial institutions for their local cash management – i.e. short-term banking needs, including short-term lending, liquidity management, etc. To the contrary, one would expect multinational corporations to be the first beneficiaries of the services offered by global banks.⁴ The disappearance of domestic banking business as a consequence of advancing financial integration therefore does not seem to be a likely development, at least not in the short run. In complementary work, Guiso, Sapienza and Zingales (2004) find evidence that even if financial markets become increasingly integrated, domestic financial institutions do not become redundant. Results suggest that local financial development - and therefore local banking - is an important determinant of the economic success of an area, even in an environment where there are no frictions impeding capital movements. All in all, we can conclude that traditional loan and deposit business appears to solve economic frictions in a way that is difficult to reconcile with very extensive cross-border expansions.

⁴ Degryse and Ongena (2003) also point to informational and political barriers that limit mergers and acquisition in banking.

The other side of the coin is that domestic banks, potentially equipped with substantial local market power, constitute a break on greater financial integration. Some see cross-border mergers and acquisitions as a possibility to solve this problem. An active use of European competition policy, e.g., taking an accommodative stance towards competition enhancing cross-border mergers could be a straightforward way to create room for such consolidation.

Degryse and Ongena (2004) suggest that bank relationships and industry specialisation are affected by competition. Bank branches facing stiff local competition engage relatively more in relationship-based lending. The effect of competition on industry specialisation is much less pronounced. A diversification effect seems to follow competition, as bank branches engage somewhat fewer borrowers in the same industry if local market concentration decreases.

As diversification tends to be associated with less risk, this result suggests a positive relationship between bank competition and financial stability. Hartmann and Carletti (2003) survey more systematically the literature on competition and stability and, indeed, conclude that the idea that competition is something dangerous in banking, since it generally causes instability, can be dismissed. Competition in banking should therefore be re-examined. The paper by Kaas (2003), e.g., suggests that policies favouring competition from foreign banks would improve welfare, if local incumbent banks were less efficient. In related empirical work, Claessens and Laeven (2003) examine whether competition in the banking sector is beneficial for economic growth. The result depends on the degree of financial development. In less developed countries, sectors that are financially dependent grow slower when the banking system is more competitive, while in developed countries more competition is associated with higher growth. More precisely, financially dependent firms will grow by 1.5 percent per annum more if the country's banking sector is more competitive. These findings support the view that sufficient competition in European banking systems is an important ingredient for the financial system to play a stimulating role for overall economic performance.

In line with this conclusion, Hartmann and Carletti (2003) also argue that there should be well-defined arrangements about the relative roles of competition and supervisory authorities. Supervisory authorities often have some role in bank merger reviews, and those countries that have given only a weak role to competition authorities may be advised to ensure that competition concerns are not neglected.

More generally, the regulatory and supervisory framework seems to have implications for retail credit markets. First of all, DeLong and Buch (2003) find that regulation is a driving factor behind international mergers: Banks operating in a more regulated environment are less likely to be the target of international bank mergers. Hence, some regulatory barriers can be impediments to further mergers and acquisitions. Second, Huizinga and Nicodeme (2003) find that international non-bank depositors

appear to favour banking systems covered by explicit deposit insurance. Systems with co-insurance, a private administration, and a low deposit insurance premium attract them. The sensitivity of non-bank deposits to deposit insurance policies opens up the possibility of international regulatory arbitrage. Third, Dell'Ariccia and Marquez' (2003) theoretical paper shows that a centralised regulator could increase efficiency at the cost of flexibility in applying different regulations to countries with heterogeneous financial systems. The benefits of a single regulatory framework therefore heavily depend on the symmetry in the financial systems of the relevant countries.

The dependence of the European financial system on banks only increases the importance of these issues. Contrary to the United States, whose system still relies more heavily on market finance, we can conclude that enough banking competition is important in European banking in order to support economic growth.

3.2. European bond markets

While the government bond market has integrated rapidly with the EMU convergence process, its full integration has not yet been achieved. The introduction of a common electronic trading platform reduced transaction costs substantially, but yield spreads of long-term sovereign bonds of the euro area are still heterogeneous. This is largely explained by different sensitivities to an international risk factor, whereas liquidity differentials only play a role in conjunction with this latter factor. Somewhat surprisingly in this context, the dynamically developing corporate bond market exhibits a relatively high level of integration. There is also increasing evidence that the introduction of the euro has contributed to a reduction in the cost of capital in the euro area, in particular through the reduction of corporate bond underwriting fees. As a result, firms may wish to increase bond financing relative to equity financing. The development of a larger corporate bond market is also important for monetary policy. For example, US evidence suggests that the rating of corporate bonds may contribute to the persistence of recessions, as rating agencies' policies affect firms asymmetrically in their access to the bond market over the business cycle. US evidence also suggests that liquidity conditions in stock and bond markets tend to be positively correlated.

As documented by Blanco (2002), the government bond market integrated significantly with the EMU convergence process and with some efforts to harmonise issuing procedures and conventions. However, full integration of the government bond market has not yet been achieved. For example, while the level of convergence in yields is impressive, yields of government bonds with similar, or in some cases identical, credit risk and maturity have not entirely converged. Typically, as shown in Table 1, yields on 10-year euro area government bonds may differ by around 15-20 basis points

between different countries. Differences in liquidity as well as in the availability of developed derivatives markets tied to the various individual bond markets have been mentioned as possible explanations for these spreads.

	Austria	Belgium	Finland	France	Greece	Ireland	Italy	Netherlands	Portugal	Spain
1993	18.4	70.6	230.1	25.5	1685.7	119.9	467.2	-16.2	468.1	369.9
1994	16.6	88.8	217.5	35.3	1402.7	122.9	365.8	0.2	361.2	313.3
1995	28.4	63.1	194.0	68.6	1042.6	160.2	535.7	4.9	462.1	442.7
1996	11.3	27.8	88.3	11.6	842.0	115.0	313.1	-5.9	235.5	252.2
1997	3.3	10.1	76.5	-7.1	454.4	65.1	118.0	-7.3	71.8	73.9
1998	16.3	19.1	24.6	8.5	393.3	24.5	33.7	7.0	28.6	27.8
1999	20.3	26.2	22.6	11.8	190.8	21.6	25.1	14.1	31.2	24.2
2000	29.9	33.3	20.3	13.9	82.2	25.2	33.3	15.2	35.1	27.0
2001	27.4	32.0	22.8	13.3	48.9	19.3	37.5	14.9	35.8	28.8
2002	16.8	19.8	18.2	8.4	32.3	21.6	24.2	11.1	22.6	15.2

Table 1 – Average yield spread for 10-year government bonds relative to Germany. *Source: ECB.*

To explain observed yield differentials between long-term sovereign bonds in the euro area, Favero, Pagano and von Thadden (2004) resort to an international risk factor (measured as the differential between high-risk U.S. corporate bonds and U.S. government bonds). There is a strong co-movement among European countries' yield differentials with Germany. As shown in Figure 4, this common trend appears to be highly correlated with this international risk factor. Somewhat surprisingly, they argue that liquidity differentials do not explain much of the yield differentials. Rather, the differentials are largely explained by varying sensitivities of local yields to the international risk factor. Liquidity only plays a role when interacting with the international risk factor.

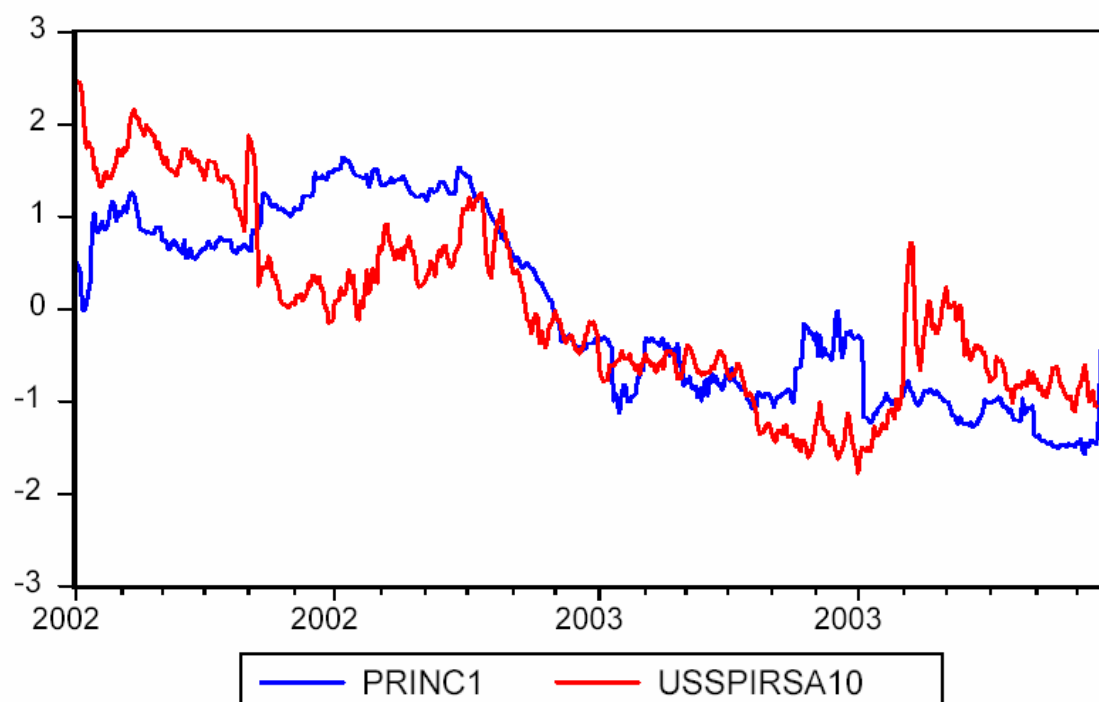


Figure 4 – First principal component of euro-area government yield differentials and the spread between the 10-year fixed interest rate on swaps and US government bond yield. *Source: Favero, Pagano and von Thadden (2004).*

Most European government bonds are now traded on MTS, the single international platform. Cheung, de Jong and Menkveld (2004) conduct a microstructure study of trading in MTS, showing that national order imbalances appear to be diversifiable across all market participants. More precisely none of the national order imbalances in the government bond markets of Germany, France, Italy or Belgium affect benchmark (German) yield innovations.

Governments have also a lot to gain from integration and well designed markets. The institutional design of markets is very important for their integration and the prevailing prices. Specifically, differences in the microstructures and issuing procedures of European Treasury bill markets across countries and changes of those features over time affect yields in treasury auctions, and thus the cost of funding for governments. As shown in Biais, Renucci and Saint-Paul (2004), regularly issuing bills significantly reduces yields. Also, when bills are traded on a centralised, transparent electronic limit order book, such as MTS, their liquidity rises and the yields decline significantly. Governments could therefore enhance liquidity and reduce yields and the costs of their funding by efficiently designing Treasury securities and issuing procedures as well as by promoting and accommodating modern cross-

country trading systems. According to the estimates provided by Bias et al., governments could save up to €350.19 million by improving the microstructure of the Treasury markets.

The corporate bond market in the euro area is surprisingly well integrated, as first documented by Baele et al. (2004). They show that in this rapidly expanding market the country where a bond is issued has only marginal explanatory power for the cross-section of yield spreads, once a number of systematic risk factors is accounted for. Quantity-based indicators also tend to support this conclusion. Between 1998 and 2002, the share of bond market funds (both government and corporate) with European-wide investment strategies increased dramatically from below 20% to above 60%, indicating a drastic reduction in the home bias of bond portfolios in the euro area. In contrast, home bias still seems to characterise cross-Atlantic portfolios of corporate loans. Evidence from Carey and Nini (2004) suggests that interest rates of syndicated corporate loans in Europe are on average 30 basis points lower than in the US. The difference is both economically and statistically significant. Since systematic differences across the two markets in loan and borrower characteristics do not explain it, they describe this pricing difference as a puzzle, encouraging further research that focuses on why borrowers do not cross borders.

Another set of results presented at network events relate to the effects of the euro on European corporate bond markets. In particular, there is more and more evidence showing that the euro has contributed to reductions in the cost of corporate bond financing, and therefore in the cost of capital more generally. For example, Tsatsaronis and Santos (2003) show that the introduction of the euro led to a reduction in the underwriting fees of international corporate bonds issued in the new currency (see Table 2). This reduction was largely due to greater contestability of the investment banking business in the post-EMU European market. There is a global downward trend in fees over the 1994-2001 period, with value-weighted average fees for 2001 standing 86 basis points below their 1994 levels. This 37% reduction is largely attributable to a sharp drop in the euro-denominated segment. As a result, underwriting fees for euro-denominated corporate bonds are now at the same level as in the dollar segment of this market.

Nationality of the borrower	Currency of denomination					
	Legacy currency		Euro	US dollar	Other	All currencies
	Foreign currency	“Home” currency				
	Before the euro					
US	1.715		1.750	1.168	1.350	1.351
Euro-area	1.945	1.504	1.103	1.304	1.295	1.492
Other	1.786		2.000	1.160	1.168	1.227
Total	1.780	1.504	1.602	1.139	1.199	1.291
	After the euro					
US			0.886	0.669	0.644	0.706
Euro-area			0.779	0.804	0.808	0.791
Other			0.597	0.757	0.653	0.652
Total			0.772	0.686	0.694	0.716

Table 2 – Average fees by nationality of borrower and currency of denomination (1994-2001).

Source: Tsatsaronis and Santos (2002).

Bris, Koskinen and Nilsson (2003) show that the introduction of the euro has lowered firms’ cost of capital, by further increasing capital markets integration in Europe and by eliminating currency risks among the countries that joined EMU. More precisely, they show that firm valuations for large firms in the euro area (as measured by Tobin’s Q between 1998 and 2000) has increased by 7.9% per year relative to firms in non EMU countries, after controlling for firm, country and time specific effects. These developments point to further growth of European corporate bond markets.

Corporate bond markets are also tied to the business cycle. According to Santos (2003), rating agencies’ policies affect firms asymmetrically in their access to the bond market over the business cycle. The idea is that the “quality” of the signal produced by the rating agencies varies with the firms’ creditworthiness. Since rating agencies are more likely to produce split ratings on bonds of mid-credit quality issuers, the impact of recessions is not uniform across firms: It increases the cost of capital most for mid-credit quality firms. As ratings become increasingly uncertain in recessions, the information becomes more asymmetric. Uncertainty related to the quality of firms then raises the cost of access to capital.

3.3. European securities settlement systems

European securities settlement infrastructures are highly fragmented and further integration and/or consolidation would exploit economies of scale that could greatly benefit investors. It is not clear,

however, whether direct public intervention in favour of consolidation would lead to the highest level of efficiency, for example because of the existence of strong vertical integration between trading and securities platforms (“silos”). In contrast, promoting open access to clearing and settlement systems could lead to consolidation and the highest level of efficiency. Finally, regarding concerns about unfair practices by Central Securities Depositories (CSDs) toward custodian banks, regulatory interventions favouring custodian banks should be discouraged, as long as CSDs are not allowed to price discriminate between custodian banks and investor banks.

The two Giovannini reports (2001, 2003) stressed the need to progress with securities settlement infrastructures, especially regarding cross-border settlement. Legal and technical barriers to further integration were highlighted. Given the already very comprehensive practical work of the Giovannini group in analysing barriers to consolidation, the network focused on somewhat different issues. Two points were particularly addressed. First, there is a lot to gain in Europe from further consolidation of securities settlement systems. Second, in addition to the barriers highlighted in the Giovannini reports, there may be intrinsic features of the securities trading and settlement industry that prevent consolidation.

Settlement in Europe is 33% more costly than in the US, as the average cost per settled transaction is \$3.86 in Europe and only \$2.90 in the US. This difference is partly explained by the segmentation in the European market, as the average cost for operating an international Central Security Depository in Europe is \$40.54 relative to \$3.11 for a domestic one, while it is only \$2.90 in the US (see Malkamaki, Schmiedel and Tarkka, 2002). Hence, looking at the exploitation of economies of scale in Europe and the US, the latter is operating at a much more efficient level.

Median	0.696
Europe, Canada	
All	0.682
Excl. ICSD	0.639
ICSD	0.696
US	0.944
Asia, Pacific	0.741
Loglinear model median	0.744

Table 3 – Cost scale elasticities for a single instruction in securities settlement. *Source: Malkamaki, Schmiedel and Tarkka (2002).*

European settlement infrastructures show a strong potential for cost saving, as illustrated by Table 3: Costs will rise by a factor of only 0.68 when the number of instructions increases by 1, while the same measure for the US is 0.94. Hence, Europe has much more to gain from further consolidation. However, given the level of complexity in EU international securities settlement systems, the effectiveness of settlement industry infrastructures may benefit from the simplification of the procedures for cross-border settlement, as for instance advocated in the second Giovannini report (2002).

Monnet and Koepl (2004) argue, however, that lifting all legal and technical barriers to consolidate may not suffice to insure that the best forms of consolidation will take place. They analyse theoretically the role of vertical “silos” in securities market organisation for efficient horizontal consolidation between components of the silo, i.e. exchanges and back-office operations such as clearing and settlement. An efficient merger is characterised by the lowest cost of clearing and settlement. They show that it is impossible to achieve such a merger when silos are in place. The reason is that lack of information on the cost structure of the competitor raises the cost to achieve an efficient merger. These additional costs can never be covered with the revenues of the merger, as they increase with the revenues. However, competition can be used to achieve efficient consolidation. The authors show that exchanges can achieve an efficient merger by each outsourcing their own settlement operations, as long as each settlement system competes for settling all trades of the merged exchange. Hence, they argue that fostering competition and open access to securities settlement systems may be an adequate policy.

Regarding the efficient design of the structure of securities settlement systems, Holthausen and Tapking (2003) tackle pricing strategies of Central Securities Depositories (CSDs) relative to custodian banks. Both CSDs and custodian banks provide the same service, but custodian banks often need to resort to CSDs. In an environment where CSDs do not price discriminate custodian banks from usual investor banks, Holthausen and Tapking show that CSDs can increase the cost of custodian banks by increasing the variable part of their price schedule. However, although still sub-optimal, they also show that the equilibrium market share of CSDs is closer to the optimal level than in the case where there are no custodians. They conclude that regarding concerns about unfair practices by CSDs toward custodian banks, regulatory interventions favoring custodian banks should be discouraged, as long as CSDs are not allowed to price discriminate between custodian banks and investor banks.

Iori (2004) looks at the efficiency and stability of alternative designs for securities clearing and settlement infrastructures. Using the plausible assumption that settlement takes place in batches throughout the day and that settlement can be delayed, she finds that increasing the frequency of settlement (and therefore approximating real-time settlement) increases the likelihood of failure but reduces the systemic effects of a failure. As a consequence, the shorter the interval between settlement

batches, the more stable gross settlement systems are compared with net settlement systems, and vice versa.

With these papers on securities settlement systems being presented in its events, the network stimulated a new research field that is particularly important for current policy concerns in relation to European financial integration. The network will continue its efforts to promote further research in this area.

3.4. The emergence and evolution of new markets in Europe (in particular start-up financing markets)

Relative to the United States, European “new markets” and start-up financing are relatively little developed and integrated. However, new markets and venture capitalists are the most important intermediaries for the financing of projects with high risk and with potentially very high return. The analysis carried out within the network reveals that European start-up financiers are mostly institutional investors, while US venture capitalists are mostly rich individuals. Also, new equity markets are essential for the development of start-up financing in Europe, as they provide an exit strategy for start-up financiers, who can then sell new successful firms using initial public offerings. The legal framework affects the development of venture capital firms. For example, very strict personal bankruptcy laws constrain early stage entrepreneurs, reducing demand for venture capital finance. More generally, firms tend to be more valuable in the context of good corporate governance practices. Therefore, the development of the single European market for financial services should be promoted by good corporate governance.

Da Rin (2003) illustrated the key characteristics of the European venture capital industry. Over the Nineties, the level of investment in the European venture capital (VC) industry was about half of the one in the US, showing the relative underdevelopment of this industry in Europe. Also the characteristics of this industry differ across the two continents. The European landscape of VC firms is highly captive (that is owned by an industrial company or financial intermediary), as shown in Table 4.

<i>Investor type</i>	<i>Average holding</i>	<i>Proportion of VC funds in which this investor type is present</i>
Banks	0.40	0.44
Corporate inv.	0.25	0.23
Financial inv.	0.30	0.31
Government	0.53	0.28
Individuals	0.45	0.24

Table 4 – Fund level survey data: European VC industry is highly captive. *Source: Da Rin (2003).*

Typically, these types of VC firms invest less in early stage and high-tech projects, providing less soft support to private companies relative to individual ones. There is also evidence that European VCs aim at selling their firms. As shown by Da Rin, Nicodano and Sembenelli (2004), the creation of New Markets could therefore foster the creation of VC firms, as additional exit opportunities create further incentives for VCs to invest. However, Da Rin also reported findings that European VC might actually not make a difference for sales growth of the companies they are financing. Table 5 shows that when controlling for the ownership structure at the time of an IPO – by including a dummy variable that takes on the value of one when different categories of shareholders are present – VC does not significantly affect sales growth rate. While VC-backed companies raise more capital at IPOs, they do not tend to grow faster than others.

Independent variable	Coefficient		Std. Error
Germany	0.5408	***	(0.1341)
Foreign sales	-0.0629		(0.1218)
Age	-0.0012	***	(0.0004)
Leverage	-0.1001	***	(0.0273)
Capital raised	0.0019	***	(0.0004)
Founders	0.2280	*	(0.1308)
Managers	0.4152	**	(0.2031)
Venture capital	0.1099		(0.1479)
Corporate venture capital	0.6610	**	(0.3762)
Constant	0.3641	***	(0.3101)
Number of obs.	355		
F(14; 340)	5.32		
<i>P-value</i>	<i>0.000</i>		

Table 5. Robust regression–dependent variable sales growth rate. *Source: Bottazzi and Da Rin (2002).*

Tykvová and Walz (2003) bring additional evidence that firms backed by bank-dependent and public VCs have significantly lower market value relative to firms backed by independent VCs. In general, firms backed by independent VCs perform better and display a lower return volatility than firms of other VCs or non venture-backed ones.

VC firms are investing very locally and with a very few exceptions have less than 10% of foreign partners. Also, the cross-border investment of VC firms is less than 2%. Finally, less than a third of funds originate from foreign investors. Most foreign investors are from the US and are concentrated in only a small number of firms (Da Rin, 2003). This shows a low degree of integration in this sector in Europe. As for the characteristics limiting integration in retail credit markets, the nature of the VC industry, which is quite different from that of other financial intermediaries, may provide an explanation. VC makes localised and undiversified investments; VC is based on human rather than financial capital; and VC has a small number of investors. However financial integration could indirectly restructure the VC industry through its effect on the allocation of funds and the changes in the EU economic structure, notably on the listing ability of new firms. In this regard, financial integration may improve exit channels for VC and reallocate talent and human capital.

Corporate governance of new firms and the legal framework surrounding early finance can also greatly affect the VC industry and the development of New Markets. Cumming and Armour (2003) find that severe personal bankruptcy laws discourage early stage entrepreneurs and therefore significantly reduce the demand for VC finance. Also, according to Giannetti and Simonov (2003) investors are more likely to buy stocks of a firm when the ratio of control to cash flow rights of the principal shareholder - expected to be positively correlated with the extraction of private benefits in a firm, and therefore used as a proxy for bad governance – is lower. Improved corporate governance has a stronger effect on sophisticated investors, like financial institutions and foreign investors, while large domestic investors and individuals that are board members, do not base their investment decisions on corporate governance grounds. Finally, Desai, Gompers and Lerner (2004) stress the importance of the institutional framework for entrepreneurial activity in Western, Central and Eastern Europe. The authors identify a particular sensitivity of entrepreneurial activity to institutional factors (corruption/fairness, protection of property rights, well-functioning legal system) for countries of Central and Eastern Europe. In particular, less corruption and better protection of property rights increase entry and reduce exit of firms. This supports the view that well-designed institutions foster entrepreneurial activity partly through the positive impact on relaxing capital constraints. Corporate governance is therefore an important factor for understanding portfolio choice across countries.

There is one feature of European governance structure that seems to be better than its counterpart in the US. The dual board system often adopted in Europe separates the monitoring and the advising roles of the board of directors. Adams and Ferreira (2004) argue that revealing information and getting advice enables the manager to make better decision, but this might increase his chances of getting fired when this information changes the board's opinion about his ability. This trade-off provides a rationale for the board to reduce its monitoring activity up-front whenever it is not too costly to induce the manager to reveal his information. The authors show further that the first-best level of monitoring can nevertheless be attained when a dual board system is used.

3.5. International portfolio choices and asset market linkages between Europe, the United States and Japan

At a global scale, asset market linkages have increased recently. For example, major economies such as the United States and the euro area have become more financially interdependent. This phenomenon can be observed in stock and bond markets as well as in money markets, where the main direction of spillovers has recently been from the US to the euro area. Country-specific shocks play now a smaller role in explaining stock return variations of firms whose sales are internationally diversified. Increases in firm-by-firm market linkages are a global phenomenon, but they are stronger

within the euro area than in the rest of the world. Various other phenomena also increase market linkages and therefore the likelihood that financial shocks spread across countries. One example is the use of global bonds. Finally, the nowadays more direct access of unsophisticated investors to financial markets may increase volatility.

Robin Brooks and Marco Del Negro (2003) reported in the Launching workshop that the degree of co-movement across national stock markets has increased dramatically in recent years. They find that the ability of country-specific effects to explain international variation in asset and sales growth and return fell significantly during the late Nineties, while the explanatory power of global industry effects increased and in some case surpassed that of country effects, as shown in Figure 5. Yet, this question is not settled. Although there is some ground to believe that international linkages are becoming stronger, country effects are still large. Where firms are located seems to still matter more than what they actually produce, although there is evidence that at the European level, industry effects are gaining further importance.

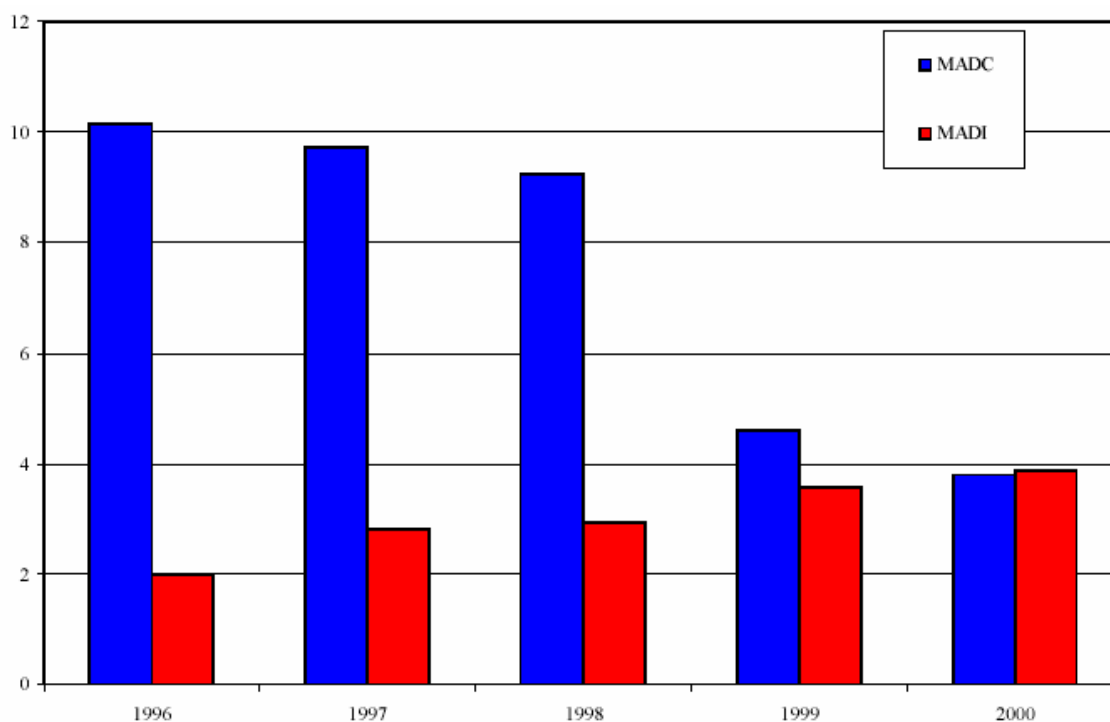


Figure 5 – The Relative Importance of Country and Industry Effects in Global Asset Growth. (Mean average deviations are measured in % per year and based on annual U.S. Dollar total asset growth). Mean Average Deviations for Country (MADC) and Industry (MADI) Effects. *Source: Brooks and Del Negro (2002).*

Stronger international linkages may be explained by growing cross-listings. Halling et. al. (2004) reported that more companies are listing their shares, not only in their domestic stock exchange, but also on foreign exchanges. They find that cross listing initially raises trading volume in foreign markets, but a declining trend then follows.

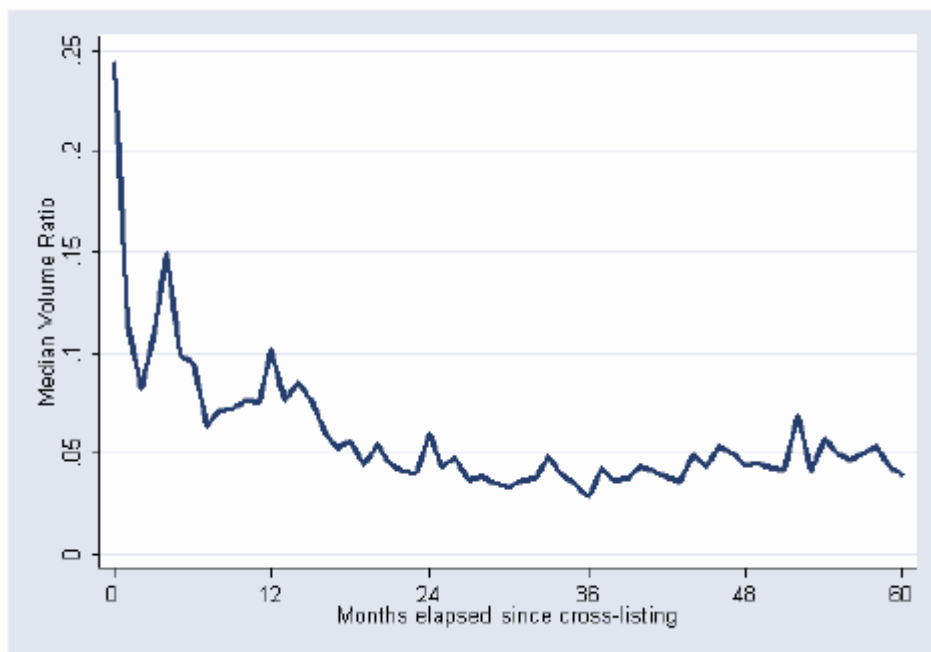


Figure 6 – Monthly ratio of foreign to domestic volume in the 5 years after cross-listing, median values. *Source: Halling et. al. (2004).*

Although this would suggest a return to the dominance of the domestic market, the decline in foreign trading is quite slow for certain companies. Foreign trading volume turns out to be higher for export-oriented companies and for companies which cross-list into foreign exchanges with lower trading costs and better insider trading protection. Also small, high-growth and high-tech firms tend to have relatively higher foreign trading activity.

Investors, as firms, are seeking ways to exploit financing capacities of all markets by creating new instruments, such as global bonds, that can be simultaneously traded in multiple markets. Miller and Puthenpurackal (2003) reported that global bonds are likely to be an expanding form of finance, as this instrument reduces the cost of debt capital. According to their study, borrowing costs for globally tradable bonds are 15 basis points lower than on comparable US domestic bonds. Moreover, issuing costs of global bonds are 13 basis points lower than that of US domestic bonds. Making these types of

instruments more attractive will undoubtedly bring additional linkages between Europe, the US and Japan, thus increasing the risk of volatility spillovers among the different markets.

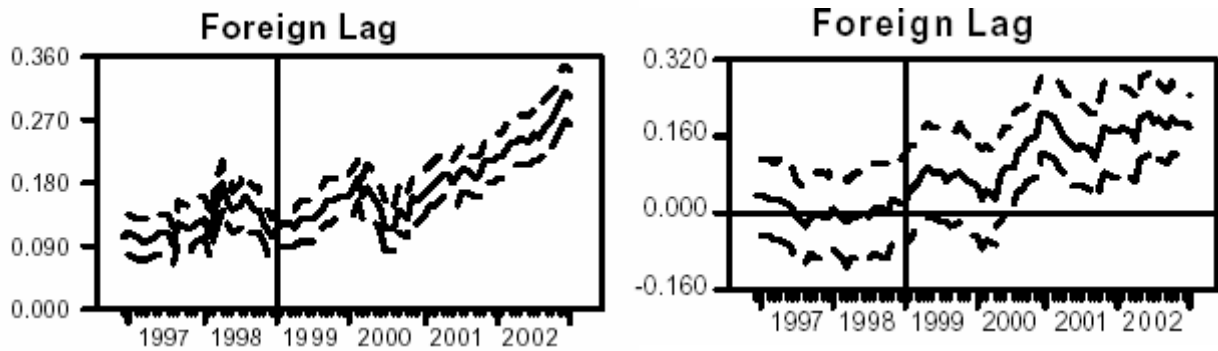


Figure 7 – Rolling window parameter estimates of the effects of a change in the US (German, left panel) money market rate on the German (US, left panel) money market rate. Germany and US, January 1993 – February 2003. *Source: Ehrmann and Fratzscher (2004).*

Examining the effects of monetary policy announcements and macroeconomic news on interest rates in the money markets, Ehrmann and Fratzscher (2004) already found evidence that the spill-over effects are stronger from the US to the euro area than vice versa. They also find that since the introduction of the euro the cross-Atlantic interdependence of money markets has steadily increased over time, as shown in Figure 7. In a similar vein, Fleming and Lopez (2003) examine whether information from other trading centres affect intra-market variances for US treasury bonds in London, New York and Tokyo. They find strong evidence that volatility spills over from New York to London and Tokyo but not the reverse.

Increased volatility spillovers may become worrisome with the “democratisation” of access to financial markets. Haliassos, Guiso and Jappelli (2002) find evidence that lower access costs brings less sophisticated investors in stock markets, with the potential consequence of inducing greater volatility. For example, unsophisticated investors can react excessively to market signals, e.g., because of the limited ability of small investors to withstand financial pressure. This suggests considering policies that can reduce volatility, such as improving the flow of accurate financial information.

Cross-border asset holdings are also encouraged by the harmonisation of securities regulation, as shown by Vlachos (2004). Institutional or cultural differences have negative effects on bilateral asset holdings, but results for regulatory differences are robust even after taking these effects into account. Hence, with increased cross-border asset holdings, local markets will be populated with investors that have more diverse information and portfolios. The presence of heterogeneous investors in stock markets has been analysed by Albuquerque, Bauer and Schneider (2004), who show that this investor heterogeneity is crucial for explaining international portfolio choices. They propose a model of international portfolio choice where investors are heterogeneous, both within a country and across countries. Bringing the model to the data, their main finding is that domestic heterogeneity of investors is much more important than cross-country heterogeneity.

4. Future Steps: Continuation of the Network

Despite the wealth of results reported in the previous section, there remain open questions to be examined, some of which have only arisen recently. This section briefly mentions some open questions and new developments to be addressed in the continuation of the ECB-CFS network.

So far an assessment of the impact of the Financial Service Action Plan (FSAP) could not be undertaken. While most FSAP measures have passed at the European level on time (before the end 2004 deadline), their implementation at the national level is still pending (deadline end 2005). The effects of the FSAP will only unfold in the coming years, including its effects on central bank policies. Further work on capital markets and financial integration in Europe should analyse those effects.

An area that is relatively little developed concerns the effects of financial integration and the modernisation of financial systems on the real economy, notably on economic growth. This dimension is particularly relevant in the context of the Lisbon Agenda and the FSAP. It is the ambition of the network organisers to also stimulate more research in this area. The same applies to the implications of financial integration for financial stability in Europe.

Finally, an important recent development is the enlargement of the European Union. New issues arise with the integration of new member states and with their envisaged future adoption of the euro. Their financial development is not identical to the ones of many of the earlier member states and the process of financial integration is likely to advance in a different fashion in those countries.

The European Central Bank and the Center for Financial Studies concluded that further research is needed in those areas, and that the network on “Capital Markets and Financial Integration in Europe” provides a good structure within which to pursue this work. The two institutions therefore agreed to continue the network for three further years. To cover, inter alia, the issue mentioned above three additional areas will be added to the main priorities of the network: (1) the relationship between financial integration and financial stability; (2) EU accession, financial development and financial integration; and (3) financial system modernisation and economic growth in Europe. The remainder of this section presents these three research areas in more detail.

4.1 The relationship between financial integration and financial stability

While an integrated area offers more opportunities to share risk and to allocate capital, it may be less resilient to unexpected and uninsurable shocks, as they may propagate wider and faster. Moreover, it is of interest to know whether greater integration could increase the risk of cross-border contagion in a financial crisis. With the integration of European financial markets going forward, it is important to understand what type of integrated financial structure is the most resilient. The ECB has an obvious interest in this. As in accordance with Article 105(5) of the Treaty, the ESCB shall “contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system”.

Furthermore, a comprehensive review of the EU arrangements for financial regulation, supervision and stability is currently underway (ECB 2003). The review, which should contribute to the further integration of the EU’s institutional financial architecture, was initially triggered by the report (2001) of the Lamfalussy Committee on the regulation of European securities markets.

The work of the research network on the relationships between financial integration and financial stability will seek to bring additional elements in shaping a view regarding what this new financial architecture should be. In particular, important questions are: Are market-based or banked-based financial structures more resilient to shocks? How can financial regulations be designed so as to be conducive of integration while still ensuring financial stability? What is the link between financial integration and contagion risk? What are the mechanisms that can trigger contagion and financial fragility? How and to what extent do financial crises impact on economic activity? Finally, how does competition in the financial services industry affect the ability of the financial system to withstand shocks?

4.2 EU accession, financial development and financial integration

As expressed by the President of the ECB (ECB 2004) “Assessing the impact of EU enlargement on the European economy is a complex question. Despite the considerable complexity surrounding this issue, one thing that is clear is that EU enlargement will provide new opportunities to trade and investment flows. Many of these effects are visible because of the high degree of economic integration already reached between the present Member States and the acceding countries.” Further financial integration is likely to follow swiftly the political and economic integration of these countries in the European Union. There are many ways in which this financial integration can take place. One way, which currently seems to be a dominant one, is that foreign financial institutions acquire financial institutions of new member states.⁵ Another way would be the cross-border provision of financial services. Clearly the first is likely to be faster than the second, and may develop accession country financial systems faster as well. The example of the “old” EU member states suggests that there are many obstacles to the direct provision of financial services abroad, in particular in retail markets. The heavy presence of foreign financial institutions may, however, pose other challenges for the new member countries, e.g., in the area of financial stability and supervision. All these developments will determine financial structures, development and competition in financial services across the enlarged European Union.

Important questions for further work within the network are therefore the following: What factors explain differences in financial structures across new and old EU member states? What role is financial integration taking in this development? What is the relation between financial integration and financial development? Who benefits from financial development in the process of integration? Are there any risks to financial stability during fast changes in financial structures and institutional arrangements? How will financial integration among accession countries advance relative to integration between accession countries and the previous EU countries?

4.3 Financial system modernisation and economic growth in Europe

The capacity of financial systems to promote economic growth depends not only on their level of integration, but also on their quality and the efficiency with which they channel savings into investment. In other words, when tackling the issue of economic growth, it would be too narrow to place the focus entirely on the level of integration. While several financial systems can be very financially integrated, they may not be developed in such a way as to achieve a greater volume or efficiency of financial intermediation, and therefore may not improve the growth performance of the

⁵ See “Financial Sectors in EU Accession Countries” (Ed. Christian Thimann), ECB, 2002.

economy. Financial modernisation and financial development, however, improves efficiency of financial intermediation, and is a process influenced by many other factors than financial integration. As the network has contributed to these issues on the link between finance and growth only to a relatively limited degree so far, they have now been added as a separate priority area.

Work could focus, in particular, on the following issues: How can one further improve the structure of highly developed financial systems? How can one measure the performance with which the financial system performs its functions? What are the costs and the benefits of modernising the financial system? What is the best form of corporate governance? What are the implications of uniform accounting standards? How to incorporate improvements in the structures of the financial system? How to effectively enforce rules?

5. Conclusion

In response to the growing need of understanding the dynamics and implications of the integration and development of the European financial system, the ECB and the CFS launched a research network on “Capital Markets and Financial Integration in Europe”. This paper described the scope, the findings and the future initiatives of this network.

The ECB-CFS research network aims at stimulating top-level and policy-relevant research on the structure and integration of the European financial system and its linkages with the United States and Japan. By acting as a hub for researchers working in these fields and by actively promoting research in specific areas of interest, the network managed to bring together in a continuous fashion a large number researchers who shared their most recent results and to stimulate new research on these issues. After two years of activity, the work done under the ECB-CFS research network helped to shed more light on the process of European financial integration, on effects the euro had on the European financial system and on the role of financial linkages between the major economies. One of the most tangible achievements of the network was the stimulation of new research on securities settlement systems, an area of high policy relevance, playing a key role in the process of financial integration. It had not attracted much attention in the academic community beforehand.

Enlargement of the European Union, the impact that financial integration may have on financial stability and the relationship between financial system development and economic growth are some key areas in which the network will concentrate its efforts over the next three years. Many important questions remain on the agenda, key policy issues need to be tackled, and many challenges lie ahead.

We hope that this article also conveyed a sense of the research excitement that is growing around European financial markets and that this may help the network to continue stimulating new insights in this important area of research.

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