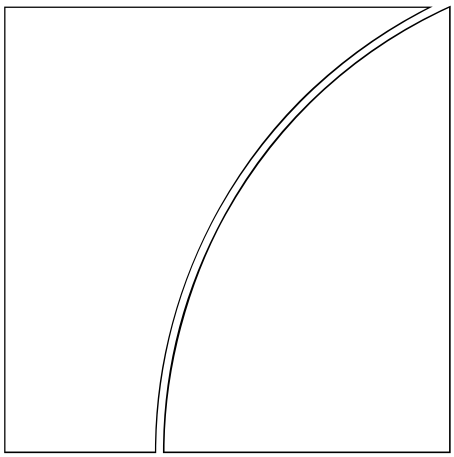

BANK FOR INTERNATIONAL SETTLEMENTS

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by Gabriele Galati and Kostas Tsatsaronis

Monetary and Economic Department

July 2001

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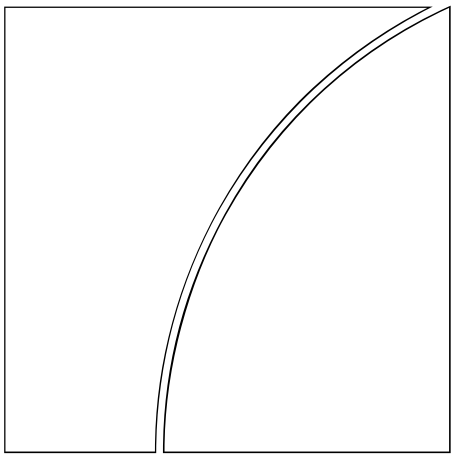

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Abstract

This paper presents an overview of the impact of the introduction of the euro on Europe's financial structure. It analyses changes in money markets, bond markets, equity markets and foreign exchange markets. The euro's role in originating or catalysing trends has been uneven across the spectrum of financial markets. On the lender side, banks and investors in fixed income markets have become more focused on the characteristics of individual borrowers rather than the nationality of the issuer and have built up expertise to evaluate credit risk. European equity markets have also been affected by the enhanced ability of investors to build strategies with a pan-European perspective as prices increasingly reflected risk factors specific to industrial sectors rather than individual countries. On the borrower side, EMU has increased the attractiveness of market-based financing methods by allowing debt issuers to tap institutional portfolios across the euro area. Lower barriers to cross-border financial transactions have also increased the contestability of the market for financial services, be it at the wholesale or the retail level.

The introduction of the euro has also highlighted the shortcomings of existing institutional structures and areas where excessive focus on narrowly defined interests may stand in the way of realising the full potential benefits from the new environment. Diverging legal and institutional infrastructures and market practices can impede further financial market development and deepening. Hence, the euro has put a premium on cooperation between national authorities and institution as a means of achieving a more harmonised financial environment.

The impact of EMU on depth in foreign exchange markets has been less clear-cut, as volatility, spreads, trading volumes and liquidity appear not to have changed in a substantial way.

JEL Classification Numbers: G15, F32, G11, F21

Keywords: international capital markets, euro, EMU, portfolio selection, money markets, bond markets, equity markets, foreign exchange markets.

Table of contents

1. Introduction[1]

The introduction of the euro is a landmark event of singular importance for the European economy. The fact that 11 economies bound themselves at one stroke to a single currency has had multifaceted implications for the macroeconomic environment, monetary policy and financial markets. The purpose of this paper is twofold: to give an overview of the euro's impact on a number of the continent's financial markets and to highlight the areas where remaining obstacles to closer integration are preventing economic potential from being realised. The paper analyses how the introduction of the euro has led, either directly or indirectly, to structural changes in financial markets. The main forces for change have worked through the euro's impact on market depth and on the competitiveness of the market environment. In addition, the introduction of the euro has provided an incentive for cooperative efforts at an institutional level.

The introduction of the euro has not only eliminated foreign exchange risk but has also contributed to the relaxation of technical, regulatory and psychological constraints that had in the past led to the segmentation of markets along national borders. As new possibilities have opened up for both borrowers and lenders in the region to diversify their financial strategies, financial markets in the euro area have deepened and cross-border activity has intensified. Borrowers have benefited from easier access to a larger investor base and investors from being able to allocate funds in a wider range of instruments and across borders.

A measure of the euro's success in fostering the development of financial markets in Europe is the extent to which its birth set in motion processes and promoted institutional and behavioural changes that have created economic value in the union of the national markets. Much like a public good, the euro's success can be measured by the degree to which the whole of the post-EMU European financial markets is greater than the sum of its constituent parts.

The deepening has cut across different markets. On the lender side, as currency and "local" interest rate risk waned during the years preceding the introduction of the single currency, banks and investors in fixed income markets became more focused on the characteristics of individual borrowers rather than the nationality of the issuer. As a result, they have built up expertise to evaluate credit risk, which is arguably more applicable across borders. European equity markets have also been affected by the enhanced ability of investors to build strategies with a pan-European perspective as prices increasingly reflected risk factors specific to industrial sectors rather than individual countries. On the borrower side, EMU has increased the attractiveness of market-based financing methods by allowing debt issuers to tap institutional portfolios across the euro area.

The impact of EMU on depth in foreign exchange markets has been less clear-cut. Apart from the shrinkage of foreign exchange markets produced by the disappearance of 11 currencies, the introduction of the euro appears not to have had a significant effect on market functioning. Two and a half years after its introduction, the euro's role in foreign exchange markets resembles that of the mark in four respects: its share in global foreign exchange trading, the tightness of spreads, its volatility vis-à-vis the dollar and the yen, and its role as an anchoring currency.

Lower barriers to cross-border financial transactions have also increased the contestability of the market for financial services, be it at the wholesale or the retail level. The trend towards more intense cross-border competition has necessitated a reorientation of business strategies by financial institutions as the issue of achieving a pan-European presence has gained prominence among their objectives. A more competitive environment has also contributed to the decline of rents derived from advantages created by the exploitation of the segmentation of markets.

Important as these effects may be for the efficient channelling of finance and the distribution of risk, the introduction of the euro has also highlighted the shortcomings of existing institutional structures and areas where excessive competition may stand in the way of realising the full potential benefits.

[1] The authors would like to thank Claudio Borio, Ben Cohen and Uwe Neumann for helpful comments and Les Skoczylas and Angelika Donaubauer for research assistance.

More specifically, it has raised questions regarding the rationale for the continuing existence of mutually inconsistent legal and institutional infrastructures as well as diverging market practices rooted in national historical experiences. As these differences can impede further financial market development and deepening, the euro has put a premium on cooperation between national authorities and institutions as a means of achieving a more harmonised financial environment.

The rest of the paper is organised in five sections. In the next three sections we look in turn at developments in three financial market segments since the introduction of the euro: money markets, bond markets and equity markets. Section 5 examines international portfolio shifts since the start of EMU. In Section 6 we analyse developments in foreign exchange markets. The last section concludes and highlights the potential impact of further progress in the harmonisation of financial infrastructure.

2. The euro in money markets: a "split personality"

The money market is the financial market most closely linked with the central bank. Beyond the high sensitivity of the short end of the yield curve to tactical monetary policy actions, the architecture of the money market is closely associated with the chosen operating framework of the monetary authorities. The advent of EMU implied the establishment of a new central bank for the euro area, the Eurosystem, and necessitated the setting-up of an operating framework that would cover the entire area. In this section we briefly review the main structural changes to the central bank operating framework and discuss their impact on the unsecured and collateralised segments of the money market in the single currency area. Overall, the impact of EMU has been considerable, but the progress towards integration of the various national markets has been uneven across different market segments. In cases where an infrastructure that could support efficient cross-border transactions existed or had to be developed as a precondition to the market operations of the Eurosystem, progress has been rapid. By contrast, market segmentation persists in those cases where institutional harmonisation has not been a high priority, such as the legal, regulatory and market infrastructure relating to securities transactions.

2.1 The operating framework of the Eurosystem

In the years leading up to the introduction of the single currency, considerable energy was expended in designing and building an operating framework that would ensure consistency and efficiency in communicating the liquidity management decisions across the entire euro area. At the same time, consideration was given to ensuring a certain degree of continuity with the operating frameworks replaced by the euro.

The result of these efforts is a hub-and-spokes framework where the tactical, operational and liquidity allocation decisions are taken at the ECB and implemented locally through market operations at the national central banks. These operations are conducted with a group of eligible counterparties that is both broad and dispersed and includes all institutions subject to reserve requirements that fulfil a set of minimum criteria on financial soundness. This group includes practically all the credit institutions in the single currency area.[2] Refinancing operations are conducted in the form of repurchase agreements with the local central bank, based on the posted list of eligible collateral securities, which are quite broadly classified in two tiers. Tier 1 collateral acceptable by the entire Eurosystem consists of marketable debt instruments. Tier 2 securities are both marketable and non-marketable securities (including equities) that are of importance for particular national financial markets and banking systems. TARGET, the large-value payment system for the euro area, has provided a reliable backbone for the cross-border flow of funds since overcoming minor bottlenecks in the very first days of its operation.

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[2] Of the approximately 7,900 eligible institutions in February 2000, slightly more than 2,500 fulfilled the requirements for direct participation in the regular operations of the Eurosystem, with the actual participation levels being still lower, normally below 1,000 (See Blenk (2000)).

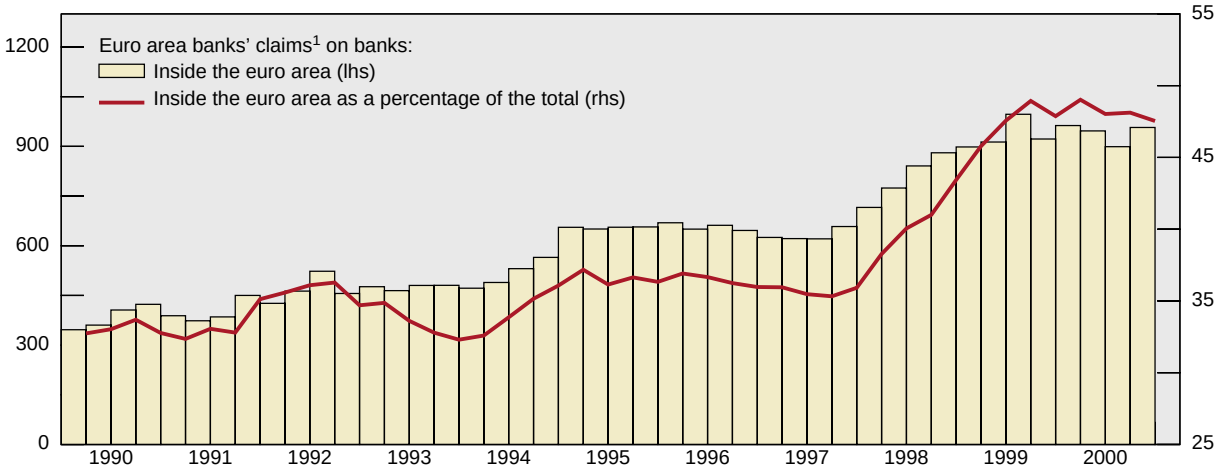
2.2 Interbank market

The experience of the first two and a half years of operation of the Eurosystem has been quite positive with the interbank market having integrated smoothly and having distributed liquidity efficiently across the entire single currency area. During the months leading up to the formal introduction of the new currency, there was some degree of uncertainty as to which would be the reference yield curve for the money market in euros: the Euribor deposit rate based on a sample of area-wide banks published by the ECB, or the competing euro Libor rate calculated in London by the British Bankers' Association. Market participants quickly expressed a clear preference for the "onshore" variant, and within weeks LIFFE withdrew its derivative products based on euro Libor in favour of the reference rate based on the continental European bank panel.[3]

Graph 2.1

Cross-border interbank activity

Amounts outstanding at end-quarter, in billions of US dollars



[1] Excluding Portugal.

Source: BIS.

The interbank market plays a key role in the redistribution of liquidity throughout the single currency area. Graph 2.1 shows the growth of cross-border interbank claims between banks located in the euro area. These amounts rose from their plateau of the equivalent of $650 billion in the period 1995-97 to more than $900 billion after 1999. Importantly, this increase in cross-border exposures has displaced exposures of the same group of banks vis-à-vis the rest of the world. The share of intra-euro area claims in total cross-border interbank claims grew from 35% to almost 50% over the same period.

This boom in cross-border interbank activity has not occurred uniformly across all credit institutions in the single currency area. A two-tiered structure has emerged, with the larger banks trading across borders directly with each other, and smaller institutions operating at the national level. This arrangement offers certain cost and information advantages because it allows smaller institutions to limit their counterparty list to a group of institutions with which they have been historically most familiar. Larger banks that have traditionally been more active on the international scene and hence better equipped to measure and manage foreign counterparty risk constitute the main conduits of cross-border liquidity flows. While the merits of such an arrangement should not be underestimated, if simply for the mitigation of short-term costs from disruptive changes in transaction patterns, its resilience under stressful conditions has yet to be tested. In particular, it is an open question whether the institutions in the top tier will be able or willing to intermediate liquidity in the same manner during periods of turmoil, when markets tend to dry up. If they restricted trading within their own group and refrained from passing it on, some banks in the second-tier group might face a liquidity deficit that would be hard to address.

[3] For a discussion of the differences in the characteristics of the two reference rates and the debate in the months preceding the introduction of the euro and the market reaction during the first months of EMU, see *BIS Quarterly Review*, August 1997 and November 1998 and Kertudo (1999).

Table 1

Three-month market rate bid-ask spreads[1]

		1996	1997	1998	1999	2000
Euro area[2]	average	14.4	12.4	9.6	8.9	8.5
	stand. dev.	*3.0*	*3.5*	*1.8*	*3.1*	*3.1*
United States	average	12.5	11.3	8.8	9.0	10.3
	stand. dev.	*2.9*	*5.3*	*4.0*	*2.9*	*2.5*
Japan	average	12.0	9.8	11.5	10.5	10.0
	stand. dev.	*2.0*	*3.8*	*3.6*	*5.9*	*1.4*
Germany	average	16.5	15.1	8.2	9.2	8.7
	stand. dev.	*6.3*	*7.6*	*2.9*	*4.1*	*3.1*
France	average	14.1	11.2	11.3	8.7	8.7
	stand. dev.	*4.6*	*2.7*	*3.0*	*2.8*	*3.1*
Italy	average	11.3	9.3	10.1	8.9	8.7
	stand. dev.	*2.3*	*2.4*	*2.8*	*2.6*	*3.1*

[1] Spreads in basis points of eurocurrency deposit rates, London close. [2] Prior to 1999, weighted average of the rates of Germany, France and Italy; weights according to the ECB capital key.

Source: Standard & Poor's DRI.

An indirect measure of the integration of the unsecured segment of the euro money market is given in Table 1 above, which shows the average bid and ask spreads for three-month eurocurrency deposit rates. Euro area based banks have provided increasingly tighter quotes as evidenced by the substantial decline in bid-ask spreads, which were 40% tighter in 2000 as compared to four years earlier. Interestingly, while in 1996 the average spread from a euro area bank topped that of US or Japanese competitors, it was the lowest in 2000. Moreover, the spreads were identical across the different countries within the area, erasing the significant dispersion that was observed in 1996.[4]

2.3 Repo market

In contrast to the unsecured segment of the money market, integration of the collateralised segment has progressed at a slower pace since the introduction of the euro. Repo markets have remained largely national and unevenly developed throughout the single currency area, and there has been very little increase in cross-border transactions.

There are several structural factors that are impeding the development of a truly unified repo market in the euro area. They relate to existing differences in the regulatory, legal and tax environment as well as to differing market practices as these have developed historically. These include short selling restrictions imposed on institutional investors as well as statutory requirements that prevent them from holding certain types of securities and the lack of a tradition in securities lending. The multiplicity of securities depositories and clearing and settlement systems throughout the area, each with specific idiosyncratic features, creates operational problems and increases transaction costs in the cross-border transfer of securities.[5] Settlement in securities transactions, in contrast to the interbank market transactions that settle directly or indirectly through TARGET, entails interfacing between different systems that often involve fairly complex national procedures. The result is not only higher transaction costs but often also compromised transaction security.

[4] This evidence is consistent with the findings of Biais et al (2000), who examine the microstructure of the overnight deposit market. They find that the market is efficient in allocating liquidity in the post-auction period.

[5] See Danthine et al (1999) and Danthine et al (2000).

The absence of uniform or harmonised codes of conduct and documentation, for repo transactions, compounded by the substantial differences in the national legal frameworks treatment of property rights and bankruptcy procedures, is the source of considerable legal uncertainty as to the ownership of collateral, its cash flow and treatment in the case of default in a cross-border transaction.

These impediments to the development of a truly pan-European securitised money market have been identified by a number of official bodies and market participants.[6] Some of these obstacles, such as the cumbersome interface between delivery systems, settlement procedures and market practices, are technical and hence easier to overcome. Others, however, such as differences in documentation and tax treatment, as well as uncertainty regarding title to the underlying securities, relate directly to deep-seated structural differences in national tax and legal systems. Achieving greater harmonisation across the euro area on this front requires more radical intervention, and hence a significant commitment, by national authorities.

3. The euro in bond markets: a success story

The bond market has been the financial market segment where the influence of the single currency has been the quickest and most pronounced (Graph 3.1). In many respects this is because that market, in both its government and private components, had a fairly international character even before the introduction of the euro. Government debt securities from the euro area have in the past been the main form of international diversification for institutional investor portfolios that were constrained by legal and other prudential restrictions in terms of the size and composition of their foreign exchange and credit risk exposures. Also the small size of the national markets and the lack of asset managers interested in private credit exposures had obliged private bond issuers to tap other markets through international bond market issuance.

3.1 Government bonds

Many saw EMU as the catalyst that would help elevate euro government bonds in the global financial market to a point where they could challenge the pre-eminence of US Treasury securities as a benchmark. This belief was based on the fact that the single currency and a unified monetary policy stance under EMU would eliminate the most important factors that had traditionally differentiated the national bond markets. Furthermore, it was expected that the conversion of the entire stock of outstanding issues to the new currency would increase their collective appeal to investors, attracted by the greater liquidity of a large pool of government bonds.

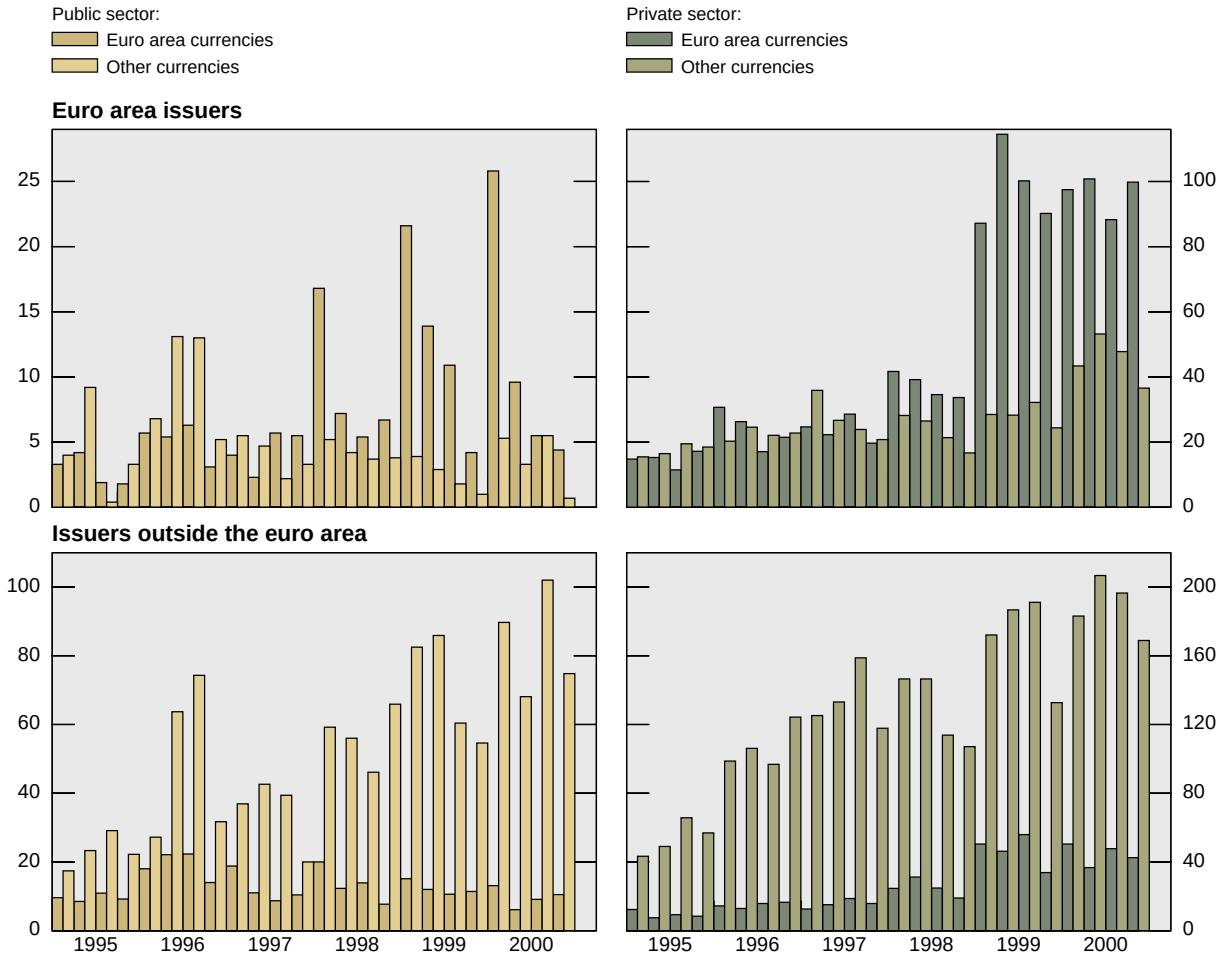
Indeed, as the launch date of the new currency approached, yield curves converged across the founding members of EMU as currency risk premiums vanished and monetary policies were fused into a common stance. The so-called “convergence plays” proved very rewarding for those investors that had early on put their faith in the creation of EMU and foreseen its broad composition (Graph 3.2). Yield spreads narrowed from highs in excess of 300 basis points, for certain maturities, to less than 30 basis points across the maturity spectrum over the course of 1997-98, and have remained at low levels since then.

[6] See, for example, the report by the Giovannini Group (1999) on the EU repo markets and CGFS (1999a).

Graph 3.1

International bonds: announced issues

In billions of US dollars



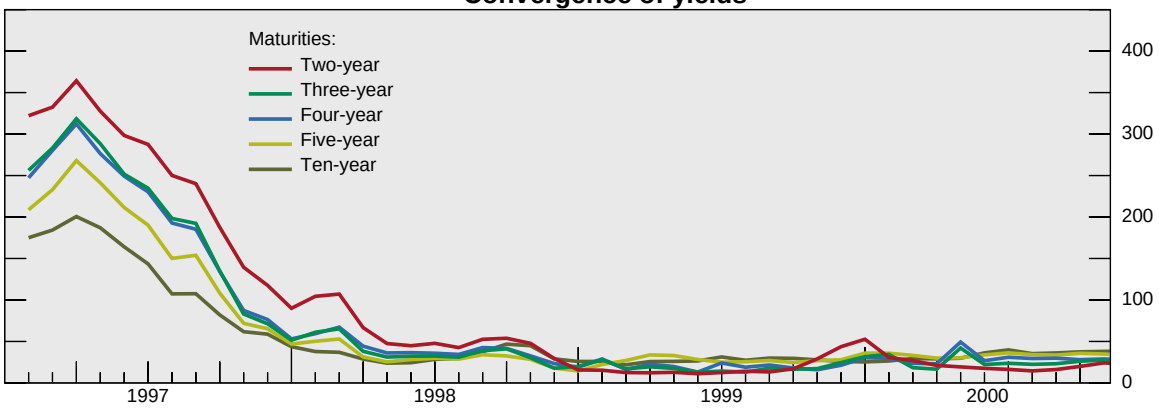
Sources: Bank of England; Capital DATA; Euroclear; International Securities Market Association; Thomson Financial Securities Data; BIS.

As of the end of 2000, the stock of euro area government debt securities was about $2.8 trillion, a level which is almost at par with the US Treasury market ($3.0 trillion) but smaller than the Japanese market ($3.6 trillion). While the opposing trends of the Japanese and US fiscal positions will alter this ranking in the near future, the euro government bond market presents itself as a serious contender for global leadership on the basis of size.[7] A comparison of the respective market values of the three bond markets paints a different picture (see the fourth and fifth columns of Table 2). The larger Japanese bond market is suffering from the impact of the prolonged weakness of the economy, concerns regarding the rate of growth of the government's indebtedness and structural impediments.

[7] See also CGFS (1999b).

Graph 3.2

Convergence of yields[1]



[1] Calculated as monthly averages of the difference between the highest and lowest yield of a given maturity of government bonds in Germany, France, Italy, Spain, the Netherlands and Belgium.

Source: Bloomberg.

Even though the single currency may not yet have elevated the euro government bond market to a higher plateau, it has certainly eliminated many of the privileges that national treasuries enjoyed in the past by virtue of being the main source of risk-free assets in their "home" currency. In a post-EMU environment, individual governments have grown more keenly aware of each other's issuance as they increasingly compete for the same investor base. Currently one third of the bonds issued by the French government are held by non-residents, a share twice as high as in 1997. Similarly, non-resident holdings of Belgian government securities reached 53% in 2000, up from 29% three years earlier.[8]

Table 2

The size of government bond markets

Outstanding stock in billions of US dollars

	Face value			Market value	
	1998	**2000**	**2002**[1]	**1998**	**2000**
Euro 11	3,474	2,834	2,900	2,266	2,430
United States	3,347	2,993	2,438	1,838	1,740
Japan	2,709	3,626	4,115	1,282	1,733

[1] Projections based on OECD projections of central government deficits.

Sources: BIS; OECD; European Commission; Schroeders Salomon Smith Barney; authors' calculations.

Overall size, however, is only one of the important characteristics of those classes of securities that compete for international benchmark status. High credit quality, reliable liquidity and technical factors such as the homogeneity of issues, regularity of issuance and a seamless link to deep derivatives markets are additional key features. Market liquidity is a multifaceted concept that is difficult to capture in a single statistic. Nevertheless, increased transaction volume (or turnover) is often associated with greater market depth and a smaller price impact of large trades. Data on turnover from Euroclear show a trend increase in the monthly volume of secondary market activity for a number of euro area government bonds since 1998 (Graph 3.3). The increase over 1997 turnover levels is most pronounced for French treasury securities, which indicate a more than tripling in transaction volume

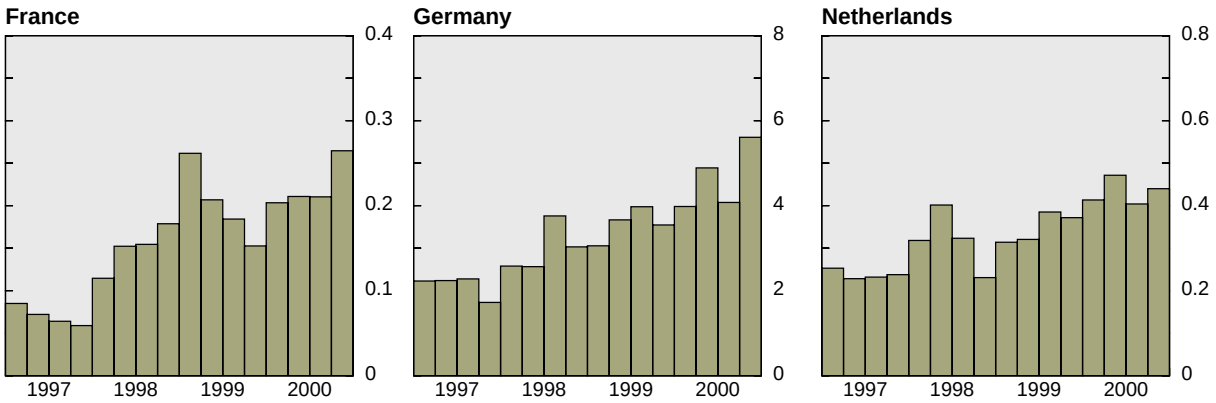
[8] Investors from the rest of the euro area were holding one-third of the total outstanding Belgian government debt.

from 1997 to 2000, but German and Dutch government bonds also show very significant growth over the same period. It must be noted that transactions effected through Euroclear are more likely to involve international counterparties as domestic investors are more likely to use the national securities depositories. This evidence is in line with the increase in the share of international holders of French government bonds.[9]

Graph 3.3

Turnover of euro area government securities

Average daily turnover of bonds most actively traded on Euroclear, in billions of euros



Source: Euroclear.

Notwithstanding its size, the euro government bond market has not yet been transformed by the single currency into something significantly larger than the sum of its parts. By the same token it cannot yet claim to match the US Treasury market's importance and reference role for international asset managers. The most vivid illustration of the shortcomings of the market is the absence of a single established reference yield curve for the new currency, a function typically associated with bonds backed by the issuer's monetary sovereignty. The multiplicity of issuers in the euro market and differences in their credit standing distinguish the market from its US counterpart. These differences are important if one considers that some of the lower-rated sovereigns such as Italy and Spain are among the more active borrowers.

The issuance policies of the 11 euro area governments had, with few exceptions, traditionally been tailored to the specific needs and institutional demands of a primarily domestic customer base. The introduction of the euro has to some extent affected this equation but has not yet fully eliminated the importance of national institutional structures.

As can be seen from the various panels in Graph 3.4, over the period 1998-2000 spreads between different issuers not only fluctuated over time but also showed considerable variation across the yield

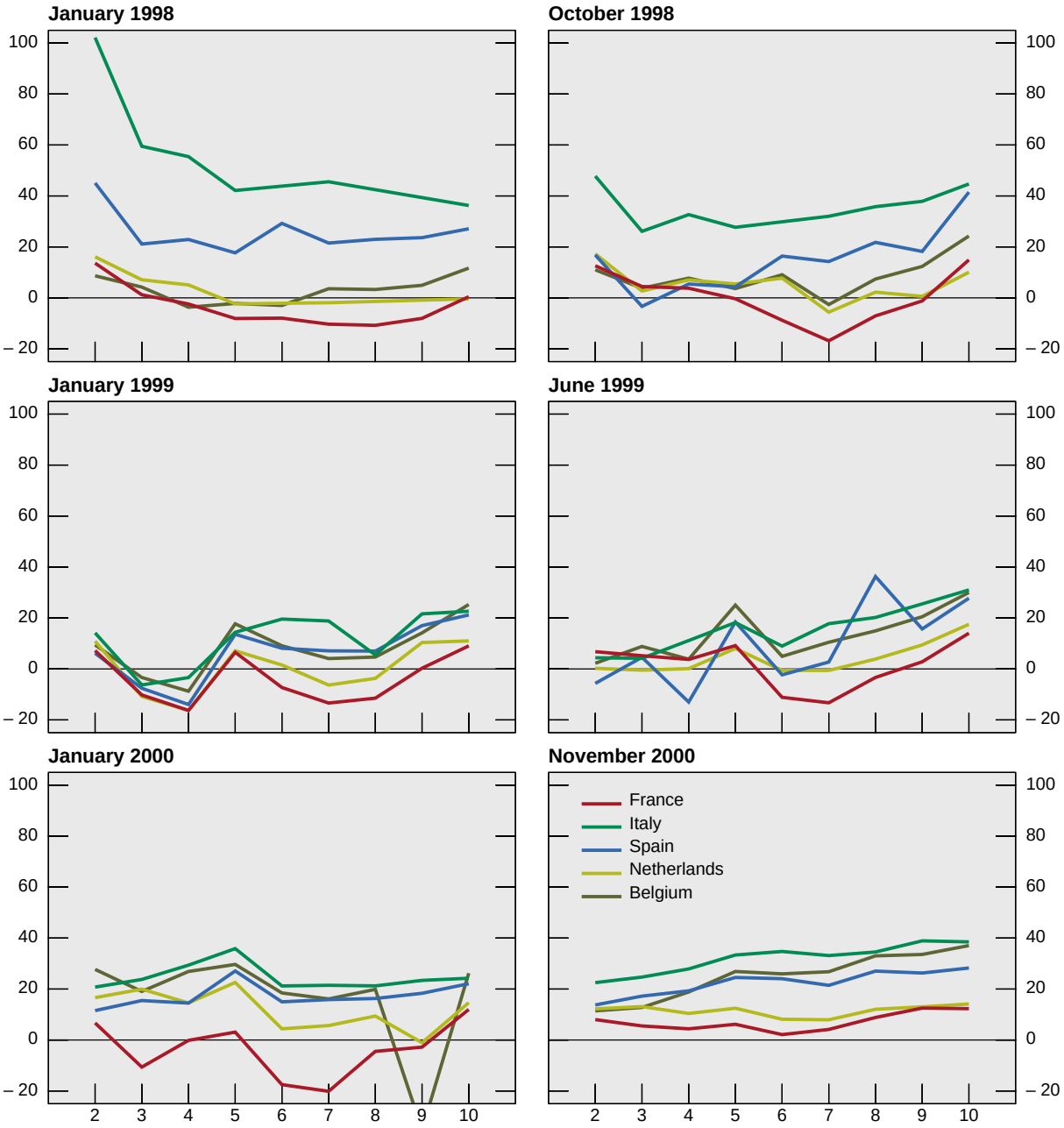
[9] See the discussion later in this section.

Graph 3.4

Variability of spreads

Yield spreads at different maturities[1]

Monthly averages in basis points



[1] Over German government bonds.

Source: Bloomberg.

curve at any given point in time. Differential credit risk cannot plausibly account for the magnitude and patterns of these spreads. For example, spreads of the order of 10 basis points frequently separate the French and Dutch yield curves from that of Germany, despite their solid AAA rating. In fact, the spread between the French and Dutch yield curves and those of lower-rated Belgium and Italy is often narrower. Similarly, credit risk premiums are unlikely to exhibit the required term structure to account for the fact that national yield curves cross at different maturity points. The presence of pronounced "spikes" in either direction along the same yield curve is usually a sign of liquidity premiums or technical factors that limit the capability of arbitrageurs to smooth out the differences by taking positions on both sides of the spike.

No individual government's securities can offer the requisite depth and spread of issuance in order to assume benchmark status across the entire yield curve. In fact, the objective of issuance practices by the area's national treasuries has been to achieve borrowing cost benefits by concentrating on strategic niches along the maturity spectrum. German bunds represent the undisputed benchmark at the 10-year tenor. Their position is consolidated by the success of the corresponding futures contract, which is the single most traded derivatives contract globally. The role of the bund for the longer maturity range was highlighted during the market turbulence of the autumn of 1998 - only a few months before the introduction of the euro - when a surge in demand by global investors fleeing from risk drove yields to record lows. In fact, the surge in the demand for 10-year bunds in both the cash and futures markets gave rise to fears that the overall supply of the particular issue would have been insufficient to cover for a greater than usual delivery into the futures contract.[10] In the event, these fears were not borne out, but the episode underscored the fact that no single government bond could act as the market's benchmark.

The French Treasury has staked a position in the mid-range of maturities from five to seven years by concentrating its new issuance and adopting a number of features that are favoured by investors such as index-linked bonds and strips. In addition it has adopted a highly transparent issuance strategy, following a preannounced calendar and taking measures to enhance the efficiency of the auction process. Market participants, however, are not yet ready to accept a benchmark yield curve made up of more than one issuer, being wary of the problems posed by small but persistent technical differences between the issues that complicate hedging and arbitrage across the maturity spectrum.

The main objective for smaller government borrowers is to improve the liquidity of their issues. In an effort to bring to market bond issues of sufficient liquidity, many of the smaller government borrowers have put in place buyback and exchange programmes designed to retire their less liquid outstanding bonds and concentrate new issuance on a small number of higher-volume tenors (ie in excess of €2 billion). A further benefit from marketing large tranches is their eligibility for trading in EuroMTS, a successful electronic trading platform for the area's better-rated bonds larger than €5 billion.[11] The desire to bring to market larger issues has also prompted smaller borrowers such as Austria, Belgium, the Netherlands and Portugal to use syndicated placement instead of traditional auctions. Banks in the syndicate have been able to place bonds with a wider investor pool compared to traditional auctions and hence allow for a substantial increase in the size of the issue. The additional costs in the form of syndication fees have been more than offset by the tighter pricing of more liquid securities.

Further homogenisation and fungibility of their instruments can bring obvious gains to government borrowers across the euro area. Existing spreads between similar credits are a measure of these potential gains. Moreover, all borrowers stand to gain from an overall improvement in the liquidity of the market, which will enhance the market's appeal to investors outside the euro area. There are a number of obstacles, however, on the road to closer cooperation, not least notions of sovereignty and the strength of existing national legal frameworks.

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[10] The five- and 10-year German bund futures contracts, which are traded in Frankfurt, are prone to such periodic "squeezes" because of their reliance on a single issuer basket of deliverable cash bonds and a shorter delivery period (one day) compared to other major futures markets.

[11] EuroMTS is an electronic trading platform for euro-denominated bonds of sufficient liquidity, modelled on the successful system for Italian government bonds. It covers government issues larger than €5 billion and private issues of at least €3 billion in size. It is jointly owned by a number of the largest banks active in the European market and it has captured an increasingly larger market share. It was estimated that at the beginning of 2000 about 40% of bond transactions were traded through EuroMTS.

A 1999 proposal for the establishment of a multilateral agency that would issue debt on behalf of the area's governments was met with considerable scepticism. Such a scheme would imply some form of collective responsibility for national debts, a notion that runs contrary to the principles of the Treaty of Maastricht. Less formal forms of cooperation whereby governments would coordinate the calendar and structure of their issues (eg maturity, coupon size and other technical features) so as to maximise volumes of issuance could also go some way towards achieving those benefits. So far, however, only unilateral measures of this type have been taken, such as the recent issuance of a 10-year bond by Austria with conditions identical to those of the German bund of the same maturity.

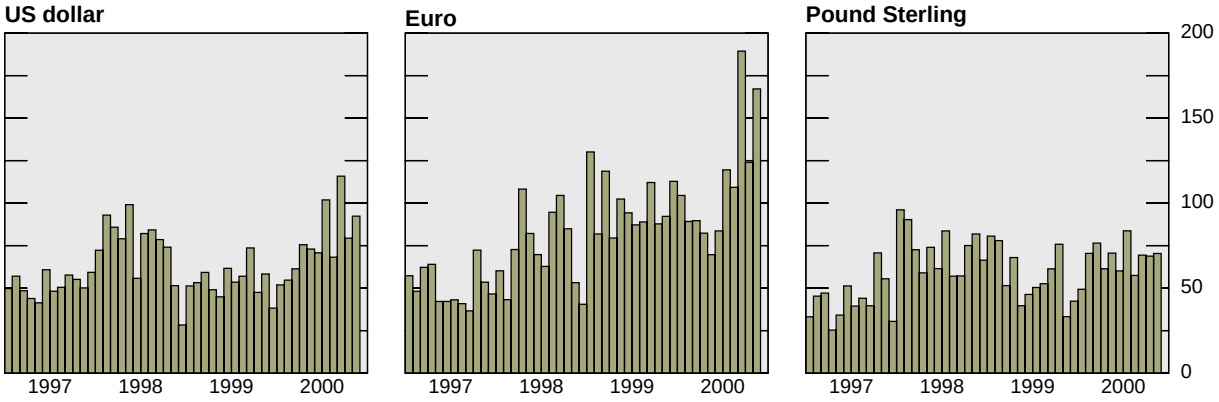
3.2 Corporate debt

The attraction of the euro has been even more powerful for private sector borrowers. One of the more prominent effects of the advent of the euro has been an explosion in the issuance of corporate bonds denominated in the single currency from borrowers both within and outside the euro area. A remarkable feature of this growth in issuance has been the fact that its timing coincided exactly with euro's debut in January 1999. As shown in Graph 3.1, a flurry of euro-denominated issues came to the market during the first quarter of that year. Borrowers from inside the euro area led the pack with a threefold increase in the volume of debt denominated in the new currency as compared with its predecessors. Non-resident borrowers were also attracted by the prospect of issuing in a new currency with appeal to investors but their response was more measured. Between August 1998 and November 1999, EU 11 private sector borrowers issued 75% of their international debt in euros, compared to 10% in the legacy currencies between January 1990 and July 1998. In the same recent period, private borrowers residing outside the euro area issued 21% of their international debt in euros, compared to 2% in the legacy currencies in the previous period.

This increase in issuance volumes is the result of the confluence of many factors, not all of them directly related to structural changes brought about by the new currency. A benign economic environment characterised by a positive outlook for growth, low inflation and low interest rates encouraged borrowers. Buoyant attitudes among investors made it easier for borrowers to tap the capital markets. Moreover, European corporations were active participants in the global wave of merger and acquisition activity during the late 1990s, and bonds offered a flexible and attractive means of financing these transactions. More specific to the European scene has been the financing of capital investments and corporate transactions related to the telecommunications sector, which has generated a healthy supply of bonds. The single currency's more specific contribution to these developments has been in the form of widening the range of investor portfolios that could be tapped with a single bond issue, thus reducing the costs of capital market financing. The success of the first wave of bonds issued in the new currency as judged by investor reception and favourable pricing gave the market momentum that carried it to a new higher level.

Graph 3.5

Turnover of private bonds

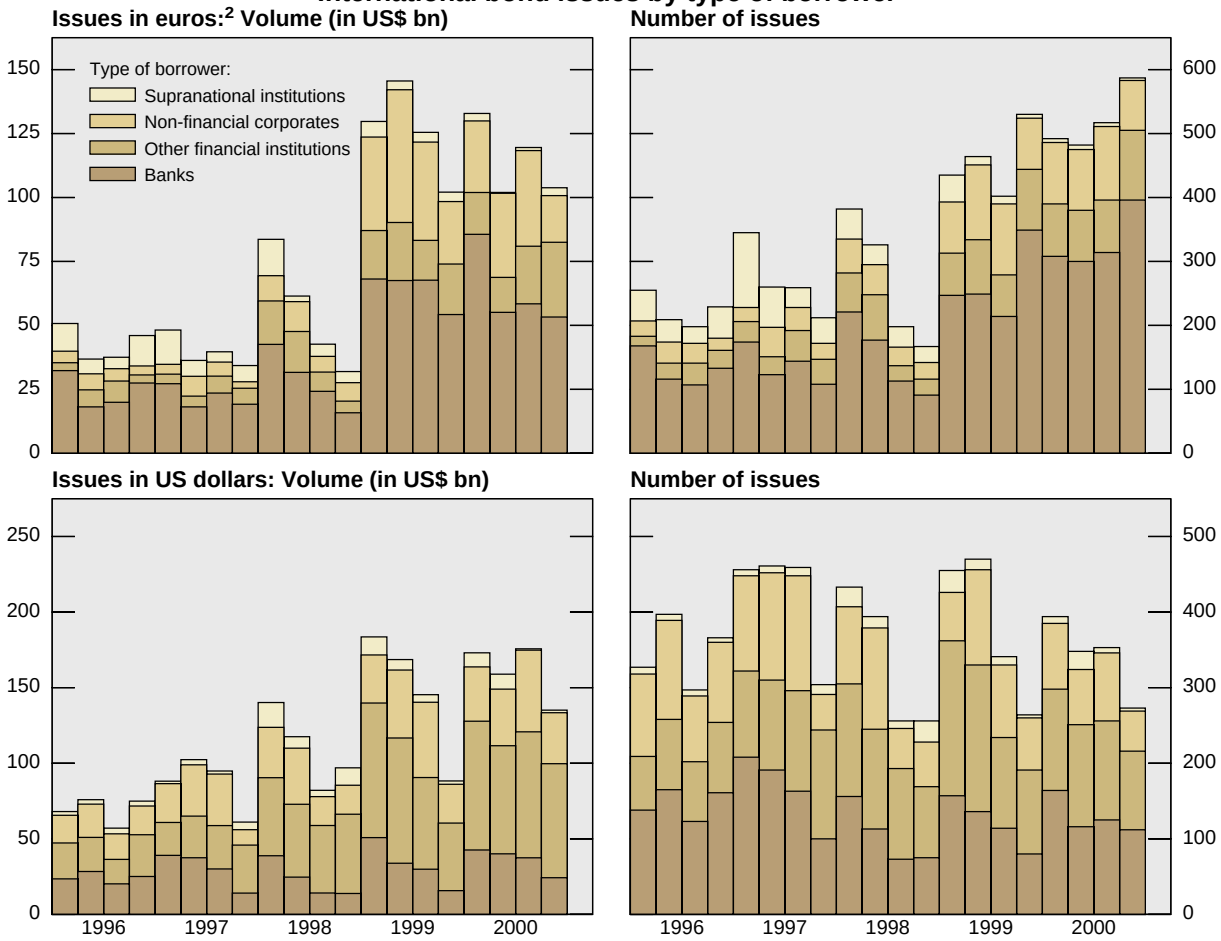


The boom in primary market issuance was also matched by a marked pickup in secondary market turnover. Data from Euroclear show that the average monthly turnover of the most active private bonds denominated in euros increased from the equivalent of $73.05 million to that of $111.8 million between 1998 and 2000 (Graph 3.5). The same data did not show any significant change in the secondary market activity of bonds denominated in US dollars or the sterling.[12]

The surge in issuance of corporate bonds in the new currency has been one of the best documented structural changes associated with the introduction of the euro. It led some commentators to venture that this might have been the beginning of a new phase in the continental European financial structure, one where market-based finance played a more important role. For borrowers, the clearest advantage of access to a pan-European base of investors is the ability to issue in size. Indeed it is in the large issues that we see the most pronounced surge in private euro-denominated issuance within the euro area.

Graph 3.6

International bond issues by type of borrower[1]



[1] By announcement date. [2] Prior to 1999, including deals in the legacy currencies and ECUs.

Sources: Capital DATA; BIS.

[12] Monthly turnover for dollar bonds was $73.6 million in 1998 and $73.5 million in 2000. The corresponding figures for bonds denominated in the sterling was $72.9 million and $65.0 million.

The rapid growth in overall issuance, however, masks a structural feature that is a characteristic sign of markets that have not yet reached the stage of full maturity: a high concentration on a few types of borrower. Graph 3.6 compares the sectoral composition of issuers in the US dollar and euro segments of the international bond market. Banking institutions represent the lion's share of the euro-denominated market in both the number and the size of issues.

Banks continue to dominate bond issuance in euros, much as they did in the pre-EMU period. During 1998-2000, banks issued 60% of all euro-denominated bonds, accounting for 53% of total volume, a share that is about double that of banks in the dollar segment of the market. The predominance of banks among European bond issuers is a sign of the structure of continental European finance. Banks have traditionally been the main channel of financing for Europe's corporates and they have used capital markets for their own financing.

A significant proportion of bank-issued bonds represent securitised mortgages and government loans mainly by German banks in the form of Pfandbriefe. The market has grown rapidly over the last few years, partly because of the euro. The highly standardised nature of the instrument, the low credit risk and the introduction of the so-called "Jumbo" issues, with a minimum size of €500 million, the commitment of the underwriters to market-making and by the issuers to accept it in repo transactions, have added to its appeal. A further boost was given by the Eurosystem's decision to grant Tier 1 status to the Pfandbrief, making it eligible as collateral across the entire euro area for its refinancing operations.

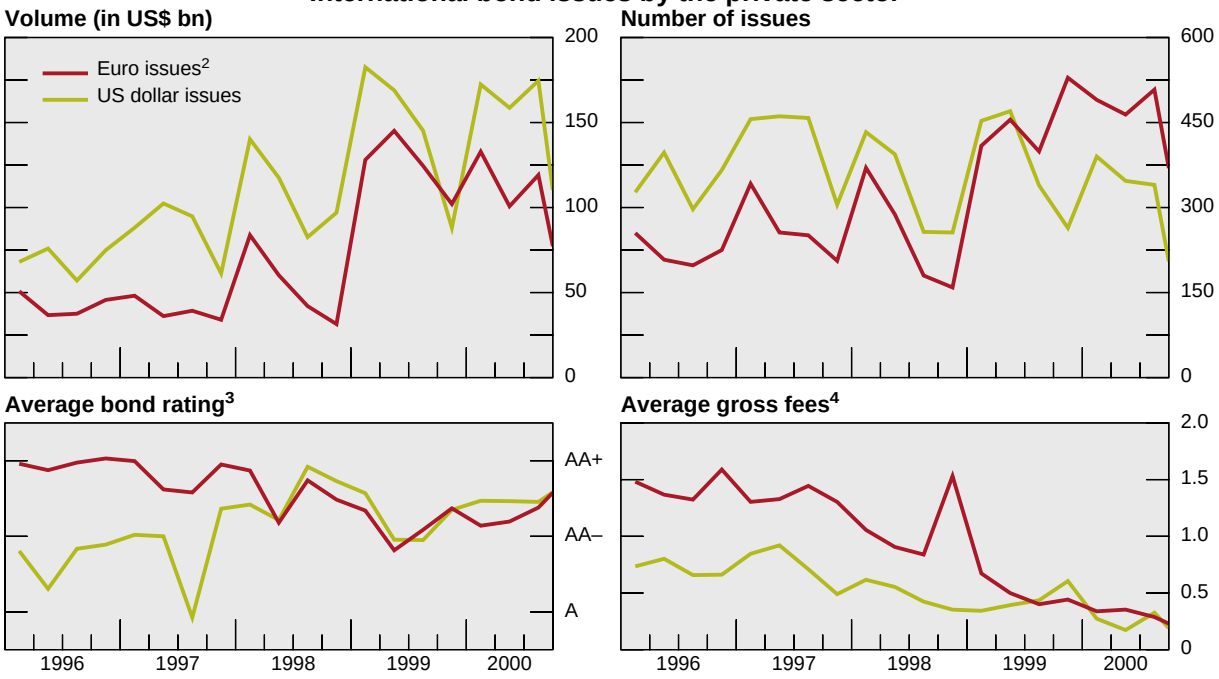
The success of German banks in marketing Pfandbriefe and thus increasing the range of financing tools has prompted a number of countries to introduce legislation in recent years that would support the creation of similar types of asset-backed securities. Although it is too early to judge the success of these efforts, imitation of the Pfandbrief model have not yet gained acceptance among international investors at a level comparable to the German original. In part this is due to the way German law treats mortgages as well as to national differences in the treatment of the collateral in the event of the bankruptcy of the issuing institution.

Among the non-financial issuers European firms in the so-called "new economy" sectors, especially telecommunications and media, have been the most active borrowers in the euro bond market. The introduction of the new currency coincided with a strong demand for funds, especially by telecommunications companies seeking to finance their growth in the wake of the privatisation of state-owned companies and the liberalisation of national markets. The growth of mobile telephony in the area and the cost of licences and infrastructure investments that would enable operators to offer the next generation of wireless services has also been an important driver of borrowing activity by the sector. The €5 billion bond issued by Olivetti in the summer of 1999 is widely regarded as a landmark for the euro-denominated corporate bond market. The proceeds financed the takeover of Telecom Italia and allowed the company to cancel the syndicated loan it had arranged in order to secure the transaction. The success of the issue despite its record size by European historical standards opened the way for other borrowers.

One of the economic effects of EMU was to render investment strategies based on cross-currency yield arbitrage and directional bets on national interest rates obsolete. It has thus encouraged bond investors to focus more closely on the assessment and pricing of credit risk. European institutional portfolio managers have begun to educate themselves in the evaluation and management of credit risk, and have gradually developed an increased appetite for it. The progressive expansion of the market towards lower credits bears witness to this process. What used to be a market limited to borrowers rated AA or higher has been able to accommodate a broadening array of credits (Graph 3.7, lower right-hand panel).

Graph 3.7

International bond issues by the private sector[1]



[1] Corporates, banks, other financial institutions and supranational institutions. Rated issues only. [2] Prior to 1999, including issues in the legacy currencies and ECUs. [3] Weighted by the issue volume. [4] As a percentage of the nominal amount.

Sources: Capital DATA: BIS.

3.2.1 High-yield bonds

The financial market turmoil that followed the Russian default dealt a severe blow to the European market in high-yield bonds, which was still in its infancy. The market remained closed for several months. Its reopening, in the second half of 1999, was accompanied by an increase in the number of issues and a broadening of the investor base compared to the previous period. As is also the case for the investment grade sector, there is considerable scope for growth for the high-yield bond market in the euro area. Capital markets offer options for more flexible and cost-effective financing of corporate restructuring and investment through longer maturity contracts and less stringent conditions compared to bank debt.

Despite its dynamism, however, the European market is still underdeveloped in many respects. Annual issuance for the period 1999-2000 was around €20 billion, implying that the market was about one tenth the size of its more seasoned US counterpart. Moreover, the balance between demand and supply has proven quite delicate, with periodic switches between excesses on one side or the other. Heavy reliance on telecommunications and media borrowers as well as the lack of a fully-fledged "domestic" investor base were behind of the volatility in market conditions in 1999 and 2000. Market commentary estimated that US institutional investors accounted for about 50% of the investor base for euro-denominated high-yield bonds in 1999. This share has been subsequently reduced with the growth of specialised funds in Europe and gradual familiarisation of European asset managers with the evaluation and management of credit risk. The relative youth of the European market implies a lack of default experience and suggests that this process of education has not yet been fully tested in practice. The absence of experienced distressed asset specialists in the European market also suggests that the high-yield sector is prone to experiencing bouts of illiquidity in periods of heightened credit risk.

The development of a fully-fledged high-yield market in Europe depends in part on the progress made in upgrading the legal framework surrounding default and documentation. Existing differences in national legal frameworks inject an unhelpful degree of legal uncertainty into cross-border transactions, and uncertainty regarding the applicable law can be an obstacle to growth. The so-called "structural subordination" of some bonds is an example of the legal questions arising in the process of building a common understanding between borrowers and investors. The issue refers to a financing

structure that de facto subordinates nominally senior capital market debt, issued by a holding company, to existing bank loans extended directly to the operating unit of the company. Banks would appear to have first claim on the operating assets of the debtor in the case of a credit event.

3.3 Competition in underwriting business: a pan-European investment banking market?

The role of the investment banker in the primary securities market is to intermediate between the issuer of the securities and the buyers. Success is thus a function of the banker's knowledge of both sides of the transaction. In choosing an underwriter, the bond issuer is guided by two main considerations: the relationship of the banker with the issuer, and the ability of the banker to successfully price the issue. Drawing on the experience and knowledge that come with an ongoing, and probably multifaceted, business relationship between the borrower and the banker would tend to reduce the overall transaction costs to the two parties. On the other hand, successful placement of the issue requires expert judgement of market conditions, including a good prediction of the future interest rate movements and accurate gauging of investor demand. Finally, it requires a good marketing operation and contacts with the institutional investor community. Historically, the latter considerations predominated in the choice of bookrunners. Table 3 shows the relative shares of international bonds underwritten by a bank of the same country as the currency of denomination of the issue (upper panel) versus those where the banker and the issuer are of the same country (lower panel). In 60% of all issues during the period 1996-97 the bonds were denominated in the home currency of the bookrunner (lower right-hand figure in the upper panel). By contrast, for only 40% of all the bonds issued by value did the bookrunner come from the home country of the borrower.

Foreign exchange risk and the existence of a number of obstacles to international diversification such as currency matching requirements for the assets and liabilities of European institutional investors resulted in a segmented bond market on the continent. Borrowers interested in tapping the market were obliged to choose a specific currency and restrict themselves to a specific group of asset managers. This segmentation made the barriers to entry higher for foreign bankers and was a source of rents to investment banks that specialised in placing issues in their home country. Establishing a pan-European presence required the setting-up of a series of specialised marketing networks and multiple research teams. This was reflected in the fact that underwriting fees for bonds denominated in the European currencies in the period before the introduction of the euro were about twice as high as in the US dollar segment of the market.

The advent of the euro has altered this picture by relaxing the portfolio constrains and broadening the investor base for bonds denominated in the new currency. Borrowers that choose to issue in euros can now market their securities to asset managers across the area. For investment bankers, the single currency has also reduced the costs of building up analytical and marketing capacity at a pan-European level, thus increasing the overall contestability of the underwriting market. Competition from abroad has also intensified as the lowering of barriers to entry and the boom in corporate bond issuance has also encouraged large US investment banks to increase their capacity in Europe.

The figures in Table 3 are suggestive of the structural changes in the euro bond underwriting market after 1998. Since the introduction of the new currency, issuers of euro-denominated bonds have increasingly employed bookrunners of the same nationality (37.5% during 1999-2000 versus 30.3% for the two preceding years) and have relied less on intermediaries from the euro area (50.6% versus 58.5%). The trend is most pronounced among US borrowers, who have increasingly turned to US investment banks to underwrite their euro-denominated issues. During the period since the introduction of the new currency, the share of these issues managed by a European bank has fallen from 33% to 26.6%, while the share of US bankers has increased from 41.8% to 54.7%.

Table 3

Currency of issue versus business relationship in the choice of bond bookrunner

Borrower's nationality		Currency of issue			
		Euro legacy currencies	Euro	US dollar	All currencies
Market share of bookrunners whose nationality matches the issue currency (in %)[1]					
Euro area	1996-98	59.0	63.1	41.1	53.8
	1999-2000[2]	56.3	60.0	39.6	55.1
United States	1996-98	34.6	28.6	81.7	71.9
	1999-2000[2]	–	26.9	79.4	71.1
All	1996-98	53.2	58.2	64.2	57.8
	1999-2000[2]	50.5	53.0	69.3	58.2
Market share of bookrunners with the same nationality as the borrower (in %)[3]					
Euro area	1996-98	39.7	35.4	19.2	28.1
	1999-2000[2]	18.1	42.1	22.3	36.6
United States	1996-98	52.6	44.5	81.7	74.2
	1999-2000[2]	–	53.5	79.4	75.2
All	1996-98	28.2	27.7	38.6	32.1
	1999-2000[2]	19.2	36.3	51.2	41.5

[1] Percentage share of the volume of bonds issued by borrowers of a specific nationality (rows) won by bookrunners of the same nationality as the specified currency of issue (columns). For example, in 1996–98, US banks ran the books of 41.1% of all US dollar bond issues by euro area borrowers. [2] Up to mid-March. [3] Percentage share of the volume of bonds issued by borrowers of a specific nationality (rows) and denominated in the specified currency (columns) won by bookrunners of the same nationality as the borrower. For example, in 1996–98, the books of 19.2% of all US dollar bond issues by euro area borrowers were run by banks from the same country as the borrower.

Sources: Capital DATA; BIS.

The result has been a significant decline in underwriting fees in the euro segment of the market and an elimination of any differences between it and the US dollar segment (Graph 3.7, lower right-hand panel). The (value-weighted) average fee for international bonds denominated in euro fell during the 1997-2000 period from 150 basis points, or about twice the corresponding figure for dollar bonds, to 25 basis points, matching the dollar segment. Santos and Tsatsaronis (2001) estimate the reduction in underwriting fees of euro-denominated bonds as a result of EMU to be around 80 basis points.

Interestingly, greater market contestability has not come from an increase in the overall number of players. If anything, the market is more concentrated as a result of financial sector consolidation and the success of the larger investment banks in attracting global business. The share of the top five and top 10 underwriters in the international bond market has decreased slightly from 55% and 71.2% to 48% and 70.9% respectively over the second half of the 1990s.

4. Equity markets: a pan-European equity market?

Overall, the impact of the euro on European equity markets has been felt mostly on the economic factors that drive share prices and less on the structure of the trading of the same securities. Since the introduction of the euro, Europe's equity markets have been characterised by two important developments only tangentially related to the new currency itself: an increase in issuance of international equity and the rise and fall of Europe's specialised exchanges for stocks of young growth companies. A third development, a negative one, has been the surprisingly slow progress in bridging the gaps between existing equity trading infrastructures in the euro area in order to facilitate the development of a pan-European equity environment. A positive development has been the growing importance of sector, as opposed to country, factors in the determination of equity prices in the euro area.

Equity issuance during 1999-2000 was supported initially by generally buoyant stock prices and the continuing trend of government withdrawal from commercial activities. Gross issuance of international equity by euro area companies was almost doubled compared with the previous two-year period to reach the equivalent of $199 billion. While impressive, this growth rate, still, fell short of the 119% rate registered by all industrialised economies during the same period. Declining bond yields in much of the euro area, a result of the economic convergence, contributed to intensified interest on the part of retail investors in riskier but potentially more rewarding equity investments. In fact, record inflows into equity mutual funds supported equity valuations across the area's markets. Despite the fact that European investors have acquired a taste for equity market risk only relatively recently, they proved quite resilient in the face of a market decline after the second half of 2000. Inflows into the area's equity funds did not show signs of slowing down until the end of that year. And even then the funds saw net inflows, albeit at a much slower pace than in the recent past.

4.1 New markets

The so-called "new markets", a network of exchanges that have been created in many countries with the objective of providing access to equity finance for small dynamic companies with high growth potential, saw their fortunes mirror the swings of their more mature cousins across the Atlantic. A new, more capital market friendly breed of European entrepreneurs seized the opportunity presented by rapid growth of the "new economy" stock prices and brought increasing numbers of small and medium-sized companies into the public equity markets. The "new markets" flourished during the build-up of the so-called "internet bubble", but saw prices, listings and investor confidence dissipate after March 2000. From a longer-term perspective, more important have been the allegations by disappointed investors that they had been misinformed and at times misled by some of the listed companies, pointing to potential gaps in the supervisory apparatus of the exchanges.

4.2 Established markets

Unlike fixed income markets, where transactions are predominantly conducted over the counter, equity markets have traditionally been closely associated with organised exchanges. Although companies have increasingly looked at opportunities to improve international investors' access to their securities (for example through the issue of depository receipts, international equity offerings or the listing of shares in international exchanges), the "home" stock exchange remains the most natural trading place for their shares. This continues to be the case even for leading firms with extensive international operations.

Continental European equity markets are on average smaller than their counterparts in the rest of the industrial world, as can be seen from their capitalisation compared to the size of the respective economies (Table 4). They also account for a comparatively smaller share of trading activity as measured by the ratio of average monthly turnover to overall size. One factor that has contributed to this weaker activity has been the segmentation of national markets and the absence of an integrated trading infrastructure covering the entire EMU area.

There have been many attempts to establish a unified platform that would allow investors from inside as well as outside the common currency zone to trade seamlessly in equities of European companies, through bilateral or multilateral agreements among the existing national bourses. The most ambitious plan of this kind is for an alliance involving six of the largest stock exchanges in the euro area, together with the London and Zurich exchanges, the aim being to create a pan-European market for the largest and most heavily traded stocks. The original ambitious objectives were gradually scaled back as the negotiations revealed the complexities of integrating historically independent markets and the strength of local interests. A gradual programme was put together that could start with simple steps, such as the harmonisation of opening hours, and could progressively culminate in the establishment of a common trading infrastructure, as well as uniform settlement and clearing facilities. By improving market liquidity and reducing trade processing costs, such a development would help the European equity markets to realise their full potential and grow to a size commensurate with the area's economy. Progress in this project, however, has been slower than initially expected. Agreement on a common architecture has been hampered by the ambitions of individual alliance members and a reluctance to change established practices and rules. Disappointment with the lack of progress and increasing competitive pressure from a number of newly created electronic trading systems have

Table 4

Stock market indicators

	Market capitalisation[1]				Turnover[2]				Number of listed stocks[1]		
	In billions of US dollars			2000 in % of GDP	In billions of US dollars			2000 in % of mkt cap			
	1990	1995	Nov 2000		1990	1995	Up to Nov 2000		1990	1995	Nov 2000
Euro area	1181	1977	4990	*84*	737	1309	6292	11	2485	2592	3800
Germany	355	577	1202	*64*	509	594	1966	15	413	678	740
France	312	500	1337	*104*	121	213	975	7	578	450	1022
Italy	149	210	744	*70*	42	87	955	12	220	250	283
Spain[3]	111	151	474	*85*	…	235	1468	28	427	362	875
Netherlands	120	287	615	*166*	41	124	625	9	260	217	225
Belgium	65	102	157	*69*	9	18	40	2	182	143	160
Austria	26	33	28	*15*	11	13	9	3	97	109	97
Portugal	9	18	57	*56*	…	4	51	8	181	169	113
Finland	23	44	271	*227*	4	19	189	6	73	73	154
Ireland	…	26	74	*79*	…	…	13	2		80	78
Luxembourg	10	30	31	*184*	-	-	2	0	54	61	53
United States[4]	3105	6918	14783	*149*	1815	5554	28552	18	6599	7671	6969
Japan[5]	2929	3545	3438	*75*	1288	884	2176	6	2071	2263	3333
United Kingdom	850	1347	2436	*172*	543	1153	4246	16	1701	2078	2408
Canada[6]	461	677	842	*121*	71	185	599	6	1144	1196	1386
Switzerland	158	398	734	*305*	65	340	586	7	182	233	252

[1] Listed domestic stocks. [2] Value of share trading; total domestic and foreign listed companies. Due to different reporting rules and calculation methods, turnover figures are not entirely comparable. [3] For turnover, Madrid Stock Exchange only; otherwise also including the stock exchanges of Barcelona and Bilbao. [4] For turnover, New York Stock Exchange and Nasdaq; otherwise also including AMEX. [5] For turnover, Tokyo Stock Exchange only; otherwise, also including Osaka Stock Exchange. [6] Stock exchanges of Toronto, Montreal and CDNX.

Sources: International Federation of Stock Exchanges (FIBV); International Finance Corporation; Swiss Exchange.

prompted some exchanges to seek closer cooperation on a smaller scale. The most prominent examples have been the announced mergers between the London Stock Exchange and Deutsche Börse on the one hand, and between the Paris, Amsterdam and Brussels exchanges on the other. The first deal would have created the second largest stock exchange in the world by market capitalisation, but collapsed under the pressure of local brokers, who felt that the envisaged merger did not adequately protect their interests. The second created a significant competitor within Europe that currently represents the second largest market in the area, but lacks prestige in terms of significant presence in the market of the area's largest blue-chip stocks.

Consolidation in the sector is generally viewed as inevitable, although the path that leads to a pan-European exchange is fraught with difficulties. A clear danger of excessive competition among the existing exchanges is the creation of parallel markets for the area's larger companies that would reduce overall market liquidity and price transparency. In such a scenario, a number of electronic trading platforms that have been set up by major market participants will stand to gain. However, these electronic exchanges have yet to prove that they can attract a significant share of trading from the established markets. A key factor to success is the ability to bring down post-trade costs by consolidating the clearing and settlement mechanisms. National markets have been built around national securities depositories and settlement systems that are intimately connected to the national payment infrastructures. Cross-border transactions are, in consequence, quite expensive in Europe because of the number of organisations that are involved in a single trade. A unified platform that could cover the whole area has the potential of significantly reducing these costs, which are estimated to account for up to 60% of overall transaction costs.

4.3 Pricing: country vs sector factors

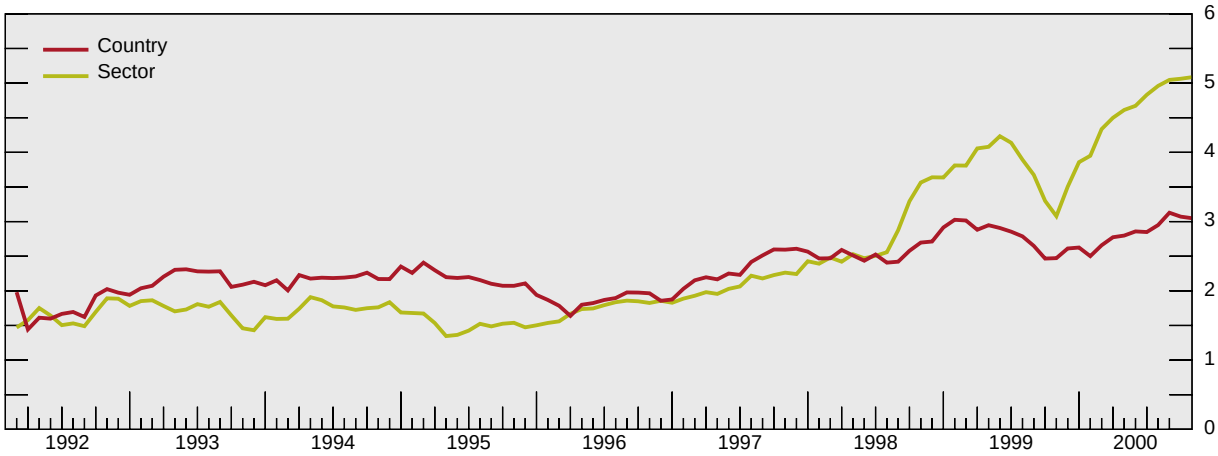
While the establishment of a unified trading infrastructure remains an elusive objective for Europe's organised stock exchanges, demand by market participants for such an environment has intensified with the advent of the euro. In the months before the introduction of the single currency, the majority of institutional investors, investment banks and asset managers started to disband their country desks and reorganise their equity analysis and trading operations on an area-wide basis around units with a sectoral focus.

This reorganisation is in line with a number of factors that have diminished the relative importance of country-specific macroeconomic factors affecting euro area equity prices. The trend towards economic integration within the European Union has proceeded gradually since the 1960s as trade barriers have been lifted and cross-border commercial activity continuously expanded. The introduction of the single currency boosted this process by eliminating exchange rate risk across the EMU economies. In addition, the creation of the Eurosystem has established a fully unified monetary policy stance across these economies while the provisions of the Maastricht Treaty promote the cohesion of fiscal policies.

As economic conditions have become more synchronised across countries, the pricing of equity risk focuses increasingly on factors that are specific to industrial sectors from a pan-European perspective. Recent surveys of market participants indicate that about 75% of managers of European equities currently believe in the superiority of portfolio allocation strategies based on industrial sectors, while only 10% of managers think that country factors are still dominant. Indicative of the importance of the euro in ushering in this shift is the fact that these proportions were 20% and 50% respectively as recently as 1997.[13]

Graph 4.1

Country vs sector effects



Graph 4.1 shows the changes in the relative importance of country and sector factors in the determination of equity prices for a number of the largest continental European firms over the past few years. Following Heston and Rouwenhorst (1994) and Rouwenhorst (1999), nine country and ten sector factor effects have been estimated from a monthly cross-sectional regression of the constituent stocks of the FTSE Eurotop300 index for the period January 1990 to October 2000. The regressions have been estimated by weighted least squares according to market capitalisation of the individual stock at the beginning of the month. By construction, the estimated country and sector effects can be interpreted as the excess return that one could achieve by investing on a balanced portfolio with a "tilt" towards the specific country or sector, as compared to the return to a portfolio invested in each country and sector in proportion to their market capitalisation. The graph plots a measure of total country and sector impact on returns, which are calculated as the averages, weighted by market capitalisation, of

[13] These figures are taken from the results of surveys of asset managers conducted on behalf of Merrill Lynch and reported in the *Financial Times* and *The Wall Street Journal*.

the absolute individual country and sector factor loadings respectively.[14] The combined effect of sectoral factors came to outweigh the impact of country factors in the few months before the formal introduction of the single currency. Moreover, its importance has since been increasing, outpacing that of the country effects, which has remained constant.

This evidence highlights the importance of overcoming the obstacles to a more streamlined process of equity trading in the euro area. Asset managers eager to pursue investment strategies on an area-wide basis are currently obliged to confront a variety of market practices and conventions and to deal with the idiosyncrasies of a multitude of trade execution and settlement systems because the national exchanges remain the natural trading environments for individual stocks.

5. International portfolio shifts

This section examines the impact of the euro's introduction on the portfolio allocation of international investors with a view to examining how the changes brought about by the new currency have affected the attractiveness of European securities. In this respect, it is useful to distinguish the behaviour of portfolio investors based inside from that of those based outside the euro area. This distinction is justified on the grounds that the investment patterns of the two groups would reflect obvious asymmetric attitudes towards the currency, and because these investors have a different perspective vis-à-vis a number of factors that can influence asset allocation. We also distinguish private asset managers from official reserve managers.

In the analysis of private portfolio investors, it is important to recognise that our analysis suffers from two important data limitations. First, in the absence of a complete matrix of flow-of-funds statistics on international portfolio investment, any evidence is necessarily partial. In addition, existing flow data figures contain no information on the currency of denomination of the securities traded. We make the simplifying assumption that the bulk of the purchases by foreign investors represent local securities and that these positions are not fully hedged against exchange rate risk.[15]

The evidence presented in this section suggests that while there has been strong interest in euro-denominated assets from within the euro area, outsiders - apart from Japanese investors - have shown little enthusiasm. Taken as whole, therefore, and subject to the caveats mentioned above, the behaviour of private asset managers appears to have weighted on the euro during its first two and a half years of existence.

5.1 Private asset managers

5.1.1 Insiders

Investors based within the euro area had been expected to be the primary beneficiaries of the new landscape emerging from the elimination of exchange rate risk for intra-EMU trades. Moreover, monetary union has technically relaxed a number of asset-liability currency matching requirements for institutional investors such as pension funds and insurance companies. Freed from the confines of their domestic markets, French and German institutional investors have provided a powerful engine for the fledgling bond market in euros, as discussed in Section 3. German investors had already sharply increased their purchases of euro-denominated foreign securities in 1998, ahead of the formal introduction of the new currency. These purchases actually intensified thereafter, with euro-denominated assets accounting for more than 70% of the €175 billion of total gross outward portfolio investment for the two-year period 1998-99 and 60% for the calendar year 2000 (Table 5).

[14] For a fuller description of the data, methodology used and the results of the exercise, see Appendix 1.

[15] A third limitation is that there is a lack of available data for 1999 on non-bank holdings of bank deposits, which would have been useful in assessing the portfolio bias in foreign investment in euro area assets. A more general consideration is that data on both asset and liability management are largely based on the residence rather than the nationality of holders. A more complete picture would need to consider both criteria.

Interestingly, investors inside the euro area continue to account for only a small fraction of portfolio inflows to Germany and have steadily reduced their portfolio investments in Germany since the introduction of the euro. This could reflect either a reduced scope for diversification offered by German assets for these investors, or the more limited influence of liquidity considerations on their asset allocation decisions.

Table 5

International portfolio flows to and from Germany

(in millions of euros)

	1994	1995	1996	1997	1998	1999	2000
Outflows[1]							
All industrial countries	44,753	18,785	26,271	77,672	122,961	174,575	204,785
- Euro area	24,044	9,328	7,390	38,269	86,091	123,702	116,875
Inflows[2]							
All industrial countries	18,180	43,637	66,263	73,823	114,552	151,018	36,325
- Euro area	9,152	-9,037	-877	-10,680	-10.539	1,306	-96,580

Note: The data for 1994-98 have been converted to the euro using the fixed parity of the Deutsche mark.
[1] Net portfolio outflows from Germany are denoted with a positive sign. [2] A positive (negative) sign denotes net purchases (net sales) of German securities by foreign investors.

Source: Deutsche Bundesbank.

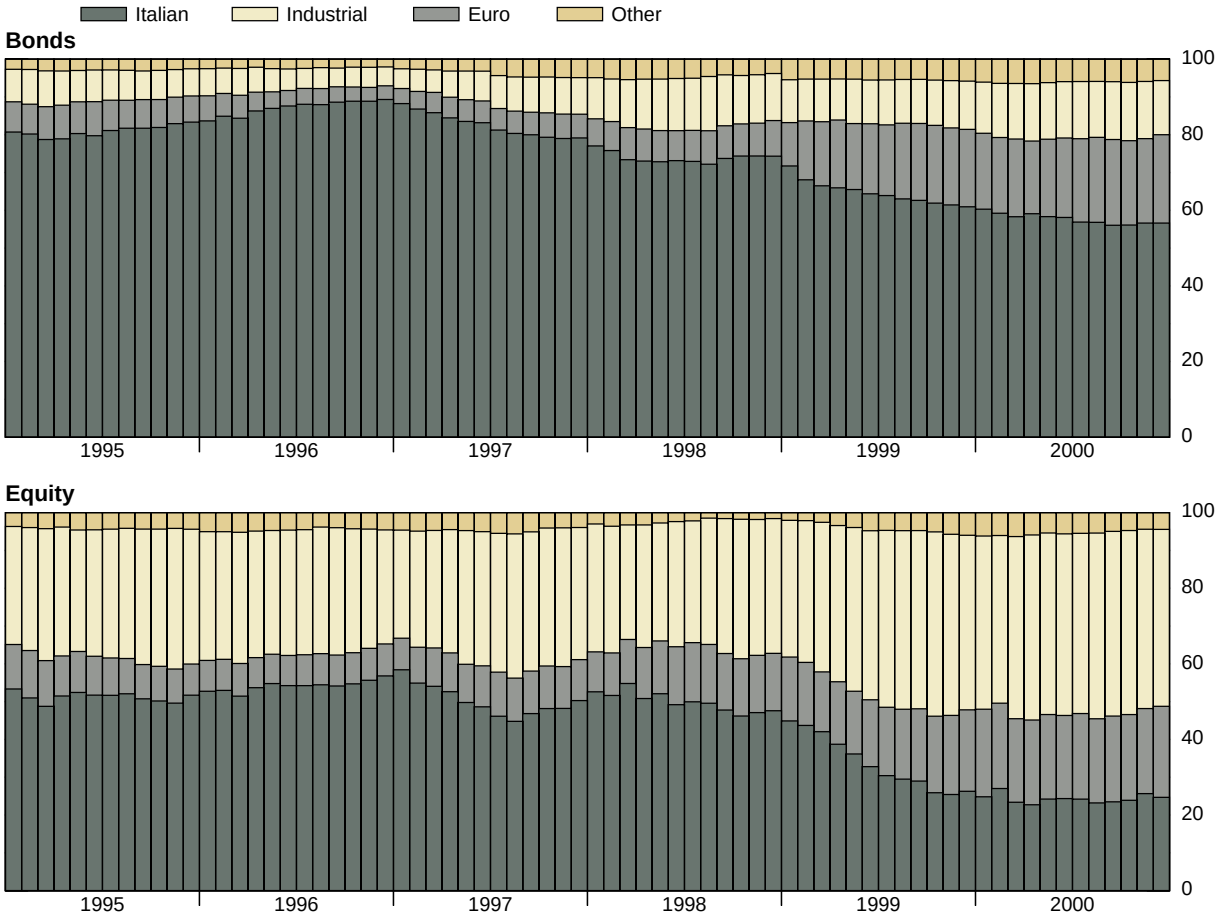
Detailed aggregate portfolio data for Italian mutual funds present a similar picture but distinguish further between different asset classes (Graph 5.1). Bond investments accounted for nearly 60% of the funds' €417 billion of assets under management at the end of 2000. While the share of fixed income securities has decreased from a high of 80% at the end of 1996, it still reflects the historically more limited importance of equities in the asset allocation decisions of continental European retail investors. Fittingly, the most pronounced effect of the euro is to be seen in the fixed income portfolios of these investment vehicles. The trend decline in the share of domestic bonds, which started in late 1996, gained momentum in 1999 with euro-denominated bonds becoming the main beneficiaries. The share of euro area bonds in the overall bond portfolio increased from 8% in 1995 to 23% at the end of 2000. While the share of euro area equities has followed a largely parallel path after 1998, Italian investors have looked outside the euro area for the primary source of diversification of their equity portfolios. Investments in industrialised economies outside the single currency area have filled up the room freed by a declining share of domestic equity allocation and accounted for nearly half of the equity portfolio of these funds at the end of 2000.

In summary, the introduction of the euro appears to have given a significant boost to intra-euro area flows, with emphasis on the fixed income segment of the market. This intensified focus of euro area asset managers on euro-denominated assets seems to have distracted them from seeking investment opportunities outside their home currency.

Graph 5.1

Portfolio flows: euro area investors

Italian mutual funds



5.1.2 Outsiders

The deepening of continental financial markets, which resulted from the catalytic effect of a single currency and a common monetary policy for the entire euro area, was expected to attract the attention of outside investors searching for alternatives to rival the breadth, size and liquidity of US markets. Over the past two and a half years, however, euro-denominated assets have had only mixed success with non-euro-based investors.

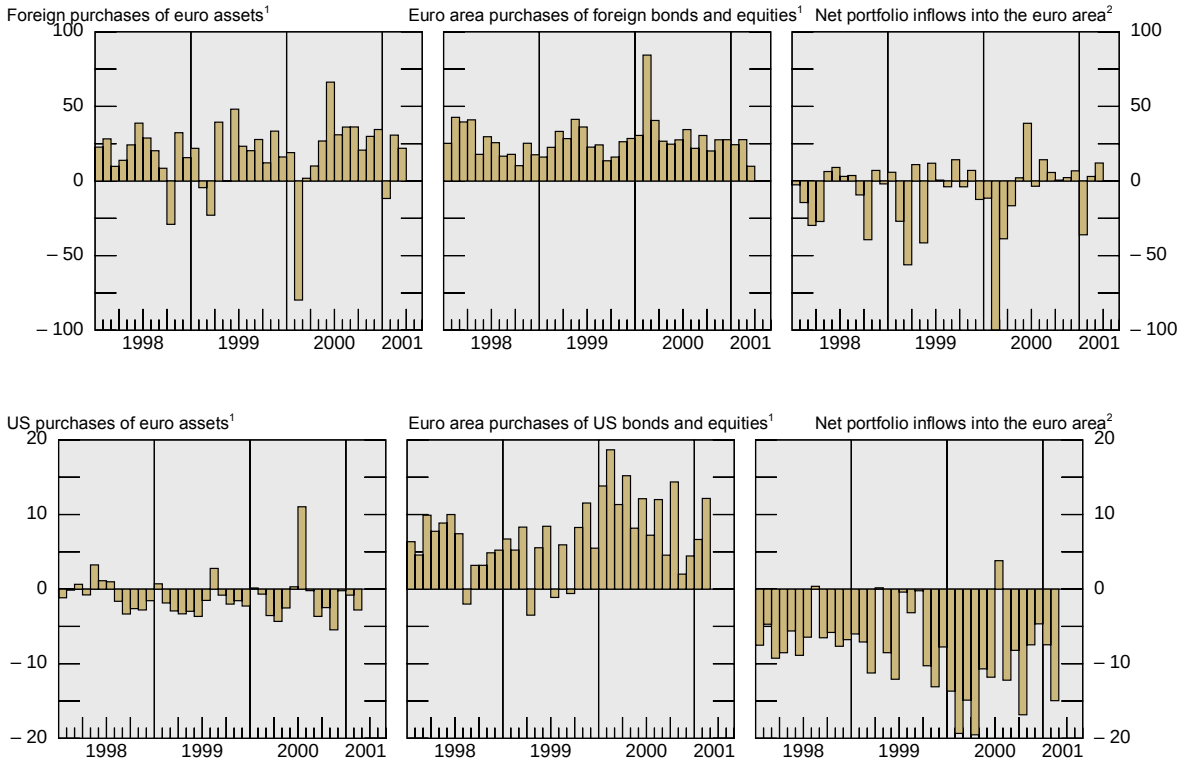
The flow-of-funds figures compiled by the ECB covering the euro area for the period 1998-2000 show an average monthly net portfolio outflow of €6.5 billion (or roughly €200 billion for the period up to last September 2000), as net purchases of assets by foreign investors were outweighed by intensive investment outflows by euro area residents.[16] Net outflows were particularly intense at the peak of the financial market turbulence during the autumn of 1998, and again during the first quarters of 1999 and 2000. While consecutive months of portfolio outflows have been interrupted by periods of net inflows, the latter have tended to be of rather moderate size (Graph 5.2, upper panels).

[16] The stated figures do not include the February 2000 data, which are distorted by the financial transactions related to Vodafone's acquisition of Mannesmann.

Graph 5.2

Portfolio flows: the rest of the world

In billions of euros



[1] A positive (negative) value indicates a capital inflow (outflow). [2] A positive (negative) value indicates a net inflow (outflow).

Sources: ECB; US Department of the Treasury.

Money market instruments are the only euro-denominated asset class to have enjoyed persistent net inflows during the first two and a half years in the life of the single currency. Foreign investor demand for euro area bonds and, to a smaller extent, equities has been quite volatile, particularly since the autumn of 1998, marked by frequent reversals of direction. This volatility mostly reflects the behaviour of foreign asset managers, as net transactions in foreign assets by euro area investors have been rather more consistent directionally (Graph 5.2, middle panel in the top row).

The mixed heterogeneous reaction of the international investor community has been expressed not only in its treatment of different asset classes but also in its dispersion according to the investors' location. The historically restricted demand for euro area equities by institutional investors based in the United States has been weak and quite volatile since mid-1998. Similarly, their moderate interest in fixed income securities has been slow to manifest (Graph 5.3, lower panels).

Among international investors, Japanese asset managers extended the warmest welcome to the new currency. In 1998 net outward investment by Japanese portfolio managers in continental European markets more than quadrupled compared to the previous year, reaching almost ¥7,000 billion (€47 billion).[17] In 1999 Japanese investors made net allocations of similar size in euros (€46.4 billion), albeit smaller in yen terms. Inflows kept up a similar pace in 2000, notwithstanding a two-month interruption at the end of the Japanese fiscal year (Graph 5.3). As with other overseas investors, Japanese asset mangers have been predominately interested in fixed income securities. Bonds account for around 90% of total net investment flows into continental Europe from Japan.

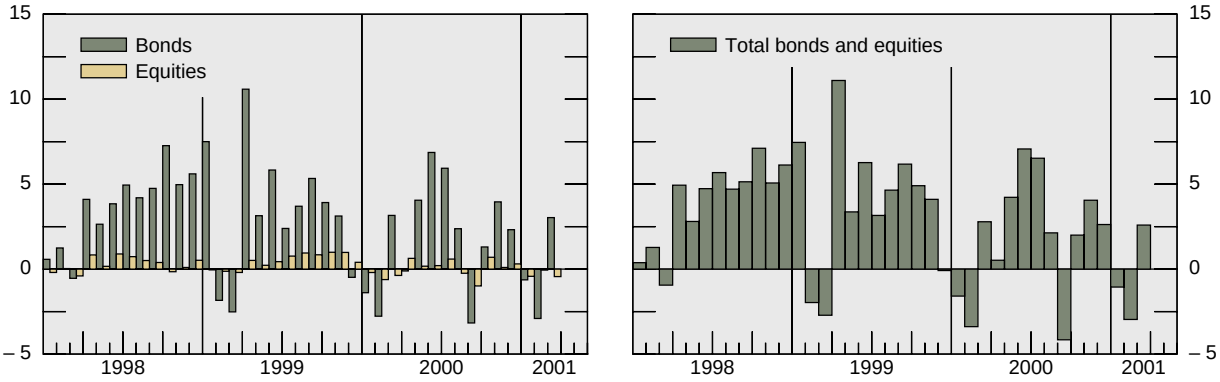
[17] The figure represents the sum of portfolio flows to Germany, France, Luxembourg and the Netherlands.

Graph 5.3

Portfolio flows: Japanese investors

In billions of euros

Net purchase of euro bonds and equities

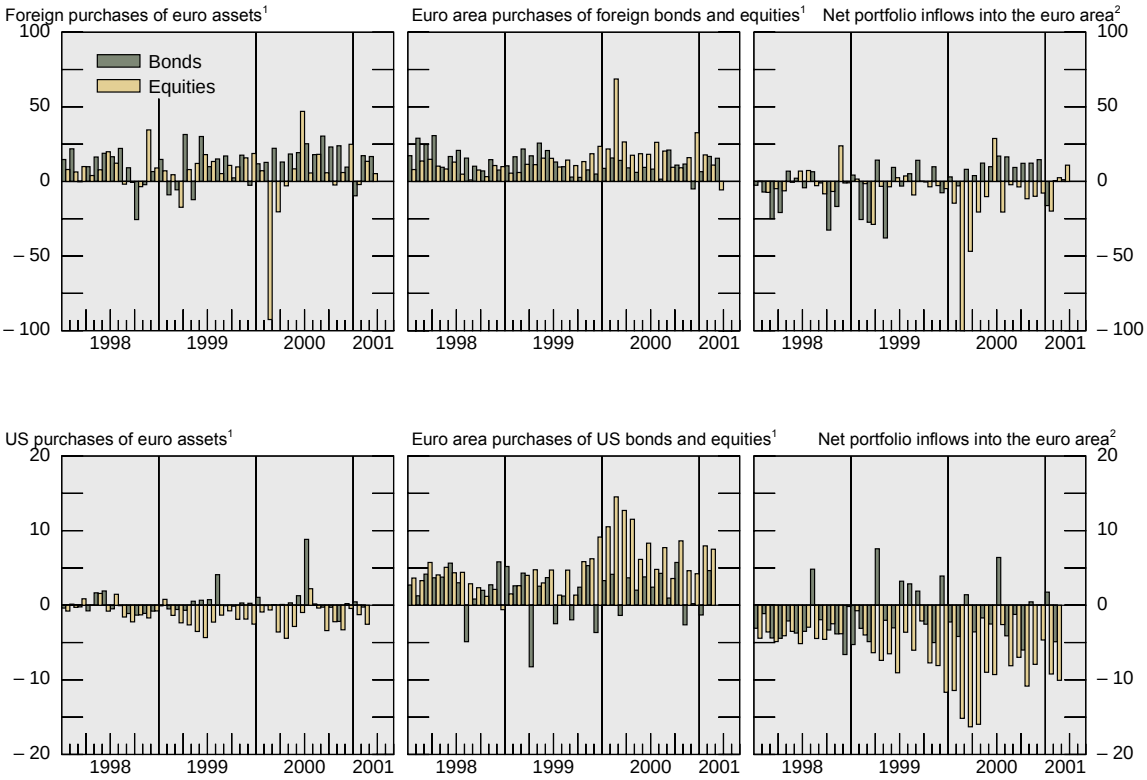


Source: Japanese Ministry of Finance.

Graph 5.4

Portfolio flows: bonds vs equities

In billions of euros



[1] A positive (negative) value indicates a capital inflow (outflow). [2] A positive (negative) value indicates a net inflow (outflow).

Sources: ECB; US Department of the Treasury.

UK investors have had the opposite reaction to the euro. The net portfolio cash flow of UK pension funds into continental European assets has been consistently negative since the second quarter of 1998. During the first half of 1999 disinvestments reached £1,633 million, topping the total net outflows of £1,271 million for the whole of 1998. This evidence is generally in line with a more broadly based survey of UK fund managers, which shows a rather neutral attitude towards continental European equities for the same period.

Fixed income securities, and in particular trade in US bonds, also account for the lion's share of the portfolio flows between the euro area and the United States (Graph 5.4). Net sales of US bonds by euro area investors during the first quarter of 1999 were generally reversed in the following months, almost shadowing the bilateral exchange rate. Given the rather subdued interest of German investors in non-euro assets discussed above, these flows must originate from other euro area countries.

In summary, a number of persistent features emerge from the analysis of asset managers' response to the introduction of the euro. First, some of the impact of the euro on the portfolio allocation of international investors predates by several months its formal introduction in January 1999. Second, euro area based investors appear to represent the main source of support for the boom in euro area bond issuance. Third, overall international portfolio flows to and from the euro area have been characterised by a considerable degree of disparity regarding the asset classes and asset managers' origin. This contrasts with the more uniformly positive reception that the new currency has had from liability managers (as analysed in previous sections). The general conclusion is that, with the exception of Japanese investors, the main shifts in portfolio managers' behaviour appear to have been confined to the euro area. The variable intensity of outside portfolio investors' demand for euro-denominated assets has failed to counterbalance the steady outward portfolio flows from euro area asset managers and has at times failed to support the new currency.

5.2 Official reserve management

Table 6

Official foreign exchange reserves

	1997	1998	1999	2000	Amounts outstanding at end-2000
	In billions of US dollars				
	Changes, at current exchange rates				
Total	56.1	55.9	129.6	139.5	1,908.7
Industrial countries	–12.0	–11.3	40.7	54.5	774.8
Asia[1]	8.5	62.2	79.1	46.4	688.4
Latin America[2]	10.9	–8.3	–8.0	2.4	127.6
Eastern Europe[3]	4.9	5.1	0.6	21.2	95.2
Other countries	43.8	8.2	17.2	15.0	222.7
	Changes, at constant exchange rates[4]				
Total	113.5	18.6	181.0	172.1	1,908.7
Dollar reserves	72.5	51.3	140.3	130.3	1,450.5
Non-dollar reserves	41.0	–32.7	40.7	41.8	458.2

[1] China, Hong Kong, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand. [2] Argentina, Brazil, Chile, Colombia, Mexico and Venezuela. [3] Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia and Slovenia. [4] Partly estimated; valued at end-of-year exchange rates.

Sources: IMF; national data; BIS estimates.

A view widely held prior to the euro's introduction was that dollar holdings by central banks in the euro area would slightly increase before 1999 and that, owing to the uncertainty regarding the changeover to the euro, they would remain stable for several years.[18] Some commentators, were on the other hand, anticipating that, after the introduction of the euro, EMU member central banks would view their dollar holdings as excessive and hence sell them. The prevailing view in the run-up to EMU among central banks outside the euro area was that, with the possible exception of Switzerland, no major changes in the composition of official reserves would occur in the near term.

Table 7

Currency composition of foreign exchange reserves, all countries

In billions of US dollars

	Total	Dollar	Euro	Yen	Sterling	Swiss franc
1999 Q1	1,597.6	1,019.3	202.0	80.4	59.6	10.3
1999 Q2	1,636.9	1,054.8	196.0	77.6	61.3	10.3
1999 Q3	1,705.7	1,090.2	207.1	86.8	64.1	10.5
1999 Q4	1,773.8	1,133.6	209.0	91.0	65.8	10.7
2000 Q1	1,799.2	1,153.8	214.6	93.8	67.1	11.5
2000 Q2	1,849.6	1,185.7	217.6	92.2	66.9	11.8
2000 Q3	1,869.3	1,290.6	213.6	93.7	67.3	11.7

Source: IMF.

It is difficult to gauge the precise dynamics of official portfolio adjustments with official data on foreign exchange reserves. Evidence from IMF data suggests that global official dollar holdings were somewhat higher in 1999 than in 1998 (Table 5). Since early 1999, the share of dollar, euro and other currency holdings in official reserves has remained fairly stable (Table 6). There is anecdotal evidence that, as expected, central banks in emerging market countries have been following a wait-and-see attitude, refraining from undertaking substantial shifts into euro-denominated assets.

6. The euro in the foreign exchange market

This section examines the impact of the introduction of the euro on the structure of foreign exchange markets. One important question that was debated at the time of the introduction of the new euro currency was whether its role in foreign exchange markets would be significantly different from that of its predecessors, and in particular different from that of the mark. More than two and a half years after its introduction, the answer is negative. The euro's role in foreign exchange markets resembles that of the mark in four respects: its share in global foreign exchange trading, the tightness of spreads, its volatility vis-à-vis the dollar and the yen, and its role as an anchoring currency.

6.1 Trading activity

From the point of view of market activity, the timing of the euro's introduction was not very propitious. According to market participants' views, total foreign exchange market activity declined in the third quarter of 1998 against the background of a general reduction in financial market liquidity. It picked up in the following months but appears to be currently significantly below levels seen in early 1998. Some of the reduction in foreign exchange market activity was implied by EMU owing to the disappearance of a number of exchange rates.[19] Trading in intra-European cross rates had already been declining in

[18] An overview of different arguments is given in Eichengreen and Mathieson (2000).

[19] In over-the-counter currency derivatives markets, the introduction of the euro appears to have been followed by a sharp contraction in trading activity (Bank for International Settlements (1999c)).

the years prior to the euro's introduction (Ban for International Settlements (1997)). On 1 January 1999, the consolidation of the 11 legacy currencies eliminated at a stroke roughly 8% of global turnover. This figure includes trading in euro predecessor currencies conducted via the dollar. Informal estimates by market participants suggest that prior to the introduction of the euro, not more than 5-10% of intra-European trading was conducted using the dollar as a vehicle. Moreover, there appears to have been little hedging activity via the dollar in connection with intra-European foreign exchange trading.

An open question is whether this decline in overall foreign exchange market trading has subsequently been reversed by an increase in trading in the euro compared to that in its predecessor currencies. Existing evidence points in opposite directions. In autumn 1999, Portes (1999) found some evidence suggesting that foreign exchange markets were undergoing "seismic" changes as a result of the introduction of the euro. He used the frequency of indicative quotes posted by Reuters on its FXFX page as a proxy for trading volumes. Portes reported that in August 1999 euro/dollar quote frequency on Reuters was four times the frequency of dollar/mark quotes in August 1998. Using Hartmann's (1998) result that quote frequency and transaction volumes had been closely related in the past, he concluded that transaction volumes involving the euro were significantly higher than those observed earlier for the mark. Moreover, euro/yen volumes appeared to have doubled with respect to mark/yen volumes, while euro/sterling turnover was eight to 10 times that for sterling/mark in 1998. By contrast, he found that sterling/dollar and dollar/yen transaction volumes appeared to have remained roughly unchanged.

However, these quotes do not represent actual trades and it is difficult to infer from a quote for which volume it is given.[20] Not only are spreads that are quoted on the Reuters screen generally far from actual traded spreads, but it is common for banks to programme an automated data input for a Reuters page, for example by having a particular quote entered at regular time intervals. This is especially true for smaller banks that may have an interest in quoting prices in order to advertise their presence in a particular market segment. Another problem with these data is that when an important event occurs, traders are likely to act and trade rather than enter data for Reuters. As a result, Reuters tick frequency may be low at times of high trading activity and high when markets are calm. The relationship between quote frequency and actual trading activity is therefore likely to be quite noisy.

By looking at changes in indicative bid-ask spreads since 1998, a recent paper by Hau et al (2000) reached the opposite conclusion. The authors found that bid-ask spreads on the euro increased substantially compared to the spreads on the mark before 1999. By contrast, spreads on dollar/yen or dollar/sterling exchange rates appeared to have remained stable since 1998 or even declined. Moreover, data from EBS, a leading electronic brokerage firm, suggested that turnover involving the euro is well below the levels observed for the mark. This seemed to be particularly true for the euro/yen market. The authors concluded that transaction volumes in the euro declined relative to those of its predecessors and presented an interesting microstructure theory explanation. According to Hau et al (2000), the introduction of the euro reduced intratemporal risk-sharing possibilities for traders. Moreover, the information content of order flows in the euro increased relative to that of order flows in its predecessor currencies.

Informal estimates by market participants in several foreign exchange centres provide an intermediate view between Portes (1999) and Hau et al (2000), as they suggest that the importance of the euro in foreign exchange trading roughly matches that of the mark. According to these estimates, the share of trading in the euro against the dollar in 2000 appeared to be lower than that of its predecessors in London and Zurich but higher in Frankfurt and Tokyo (Table 8). The share of euro/yen trading accounts for only a small part of the total market, as with the mark/yen segment. This share is even smaller than that of mark/yen trading. Many market participants view the low activity in the euro/yen market as disappointing. There are two respects in which market activity in the euro vis-à-vis other industrial country currencies does not match prevailing expectations. First, the Swiss franc is traded more against dollars than euros, while before the introduction of the euro most of the trading in Swiss francs involved the mark. Second, trading in dollar/sterling seems to have grown in recent years at the expense of euro/sterling.

[20] See, for example, Hartmann (1998).

Table 8

Currency composition of foreign exchange turnover[1]

	United Kingdom		Japan		Germany		Switzerland	
	April 1998	April 2000	April 1998	2000 Q2	April 1998	April 2000	April 1998	July 2000
	Percentage share in the total local trading volume							
Euro[2]/dollar	22	28	7	13	52	65	21	15
Dollar/yen	13	15	76	67	6	7	11	6
Dollar/sterling	14	33	3	…	4	2	5	11
Euro[2]/sterling	3	2	0	…	3	3	2	0
Euro[2]/yen	2	1	4	3	2	4	2	1

Note: For 2000, informal estimates.

[1] Spot, forward and swap transactions. [2] Prior to 1999, Deutsche mark.

Source: BIS.

Electronically brokered spot trading volumes confirm these conclusions (Béranger and Galati (2000)). In 2000, 85-95% of interbank trading in the major currencies was said to have been conducted using electronic brokers, compared to about 50% in 1998 and 20-30% in 1995. Two brokers, EBS and Reuters, currently dominate this market segment, with EBS mostly covering trading in the dollar, euro, yen and Swiss franc, and Reuters being used predominantly for transactions involving sterling. Since electronically brokered transactions cover only a part of foreign exchange markets, it would be misleading to use them as a proxy for total turnover. Subject to this important caveat, however, they support the conclusion reached by looking at traders' informal estimates.

Estimates of trading in emerging market countries can answer the important question of whether traders in these countries will transact their home currency against the euro much more often than they did against its predecessor currencies. Another interesting issue is whether the euro might threaten the dollar's dominant role in these markets. Evidence on the shares of foreign exchange turnover accounted for by the dollar, euro and yen presented in Table 9 shows that the role of the euro so far seems to be similar to that of the mark, being confined mainly to eastern Europe. In emerging markets outside eastern Europe, the euro's role remains limited, as was that of the mark previously. It is noteworthy in this context that in Asian emerging markets, the yen plays a minor role in foreign exchange trading involving the domestic currency.

In summary, there is evidence that the introduction of the euro has to date caused major changes in foreign exchange market activity. This appears plausible given that foreign exchange markets had been preparing for the euro's arrival for several years, as the trends in trading of European cross rates through EBS shows (Bank for International Settlements (1997,1999b)).

Table 9

Currency composition of foreign exchange trading in emerging markets

	Dollar	Euro	Yen
Brazil	0.90–0.95	..	..
Colombia	1.00	0.00	0.00
Mexico	0.95	..	..
India	0.90	0.03	0.01
Korea	0.98	0.00	0.01
Philippines	1.00	0.00	0.00
Thailand	0.92	0.01	0.04
Hungary	0.30	0.70	0.00
Poland	0.78	..	..
Russia	0.98	0.02	0.00
Slovakia	0.75	0.10	0.10
Israel	0.94	..	..
Saudi Arabia	0.90	0.04	0.06
South Africa	1.00	0.00	0.00

Source: National central banks.

6.2 Spreads

In terms of the tightness of market spreads, the conclusions on the impact of the introduction of the euro depend on the type of evidence used. While indicative quotes used by Hau et al (2000) suggest that spreads on transactions involving the euro increased significantly compared to transactions in the mark before 1999, Detken and Hartmann (2000) report that there was no significant change in bid-ask spreads after the introduction of the euro. Market commentary indicates that the introduction of the euro has not changed the tightness of spreads in any significant way. The standard spread on dollar/euro interbank transactions was around 2 basis points in 2000, compared to 5 basis points on dollar/mark transactions in 1998. Spreads on transactions involving the yen or the Swiss franc also appeared not to have changed significantly. Trading in sterling seems to be an exception, as spreads widened appreciably in 1999. While the standard spread in the interbank sterling/mark market was 5 basis points in 1998, the standard spread on euro/sterling is currently 2 basis points, which corresponds to a 5 basis point spread on sterling/mark.

6.3 Volatility

The volatility of the euro's exchange rate has important implications for the currency's role in international portfolios. The common argument is that if international investors view the euro as stable, they will have an incentive to hold euros in their portfolios, and thus diversify away from the US dollar.

Two and a half years after the introduction of the euro, there are no indications that the short-term volatility patterns of its exchange rates have been significantly different from those of the mark before 1999 (Table 10). The historical volatility of the euro/dollar rate in 1999 was close to the average of dollar/mark volatility in the 1990s. While both euro/dollar and euro/yen volatility rose in early 2000, reaching 13% and 17% respectively on an annualised basis, these levels are not unusual by historical standards.

Table 10

Volatility in the major foreign exchange markets[1]

	Yen/dollar	Euro[2]/yen	Euro[2]/dollar
1980–89	10.2	7.3	10.9
1990–99	11.2	10.7	9.5
1997	11.5	11.4	8.6
1998	17.5	15.4	8.2
1999	12.6	14.2	9.3
2000–2001 Q1	9.6	16.7	13.4

[1] Standard deviations of annualised daily returns computed over calendar months. [2] Prior to 1999, mark/yen and mark/dollar.
Sources: ECB; BIS calculations.

Taken together with evidence on turnover and bid-ask spreads, these findings on volatility suggest that the euro's arrival did not bring about any significant change in market liquidity. This conclusion is consistent with market commentary on developments in foreign exchange market liquidity.

6.4 Anchoring properties

Around the start of EMU, much debate centred on the role of the dollar, euro and yen as currency anchors and the question of whether the euro would play a more prominent role than the mark. These issues are relevant for FX markets since the euro's weight in these markets will depend on its role as anchor currency.

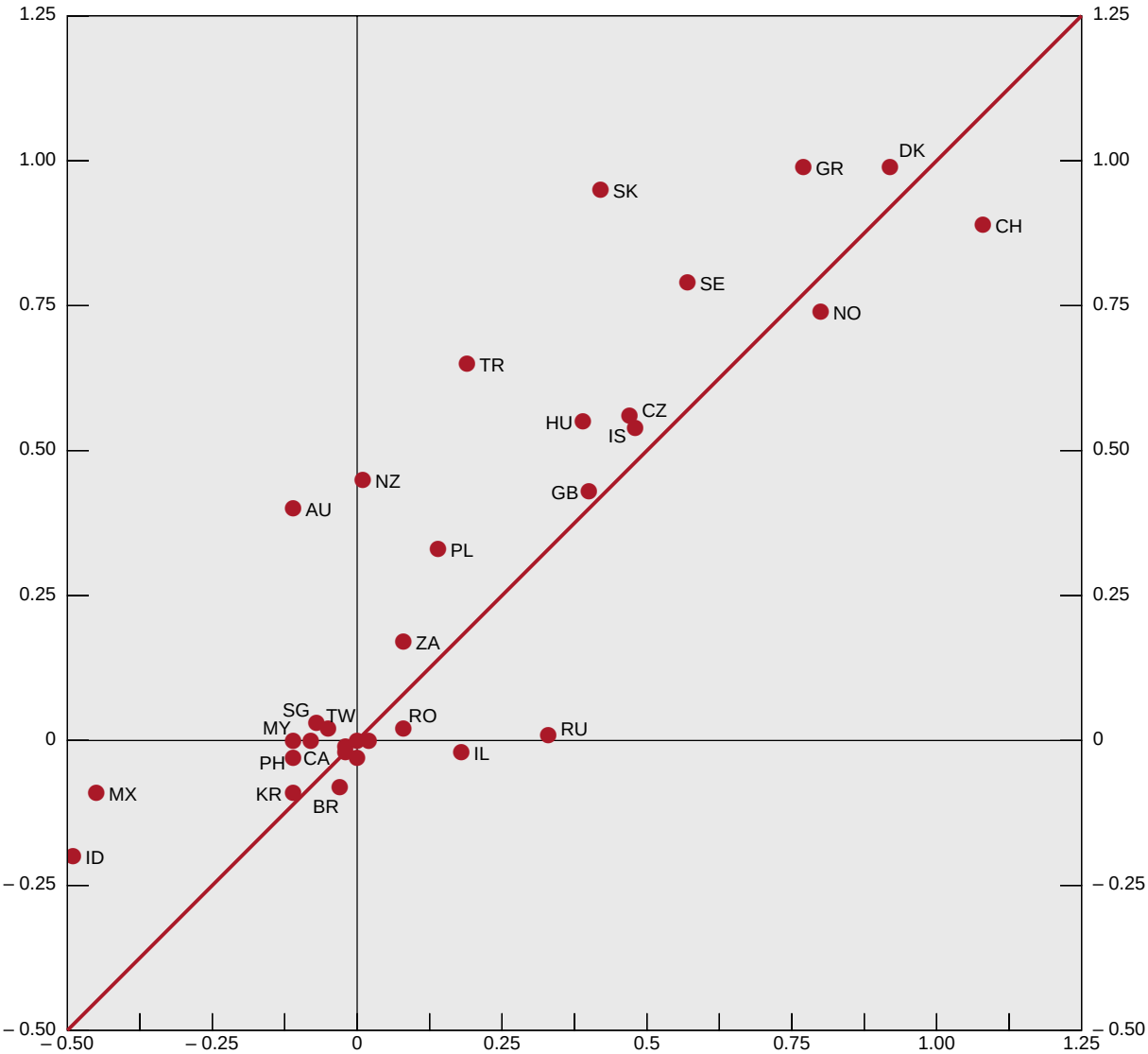
There are different ways to assess the gravitational force on other currencies. One way is to use the weight that official exchange rate policies assign to the dollar, the yen and the euro or, before 1999, assigned to the mark. However, these policies may tell little about the weight of the dollar and other currencies in the policies followed. More importantly, actual exchange rate movements may differ from official exchange rate policies. An alternative way of assessing the anchoring role is to look at the actual co-movement of currencies with the dollar, the euro and the yen. This co-movement can be measured by the sensitivity of the dollar exchange rate of a currency to dollar/mark and dollar/yen movements. In practice, this involves regressing percentage changes of the dollar exchange rate of a currency on a constant and percentage changes of the dollar/euro and the dollar/yen exchange rates. If the coefficient on the dollar/yen and the dollar/mark exchange rates is low in absolute value, this would indicate that the actual movements of that currency track mainly the dollar, while the euro and the yen do not play a significant role. Conversely, a high coefficient on the dollar/euro (the dollar/yen) exchange rate would suggest that the currency tracks mainly the euro (the yen).

Graph 6.1 shows the results of this analysis for two periods: 1995 to 1997 and 1999 to 2000. It reports, on the horizontal axis, the sensitivities of a number of currencies to changes of the dollar/mark rate during the period 1995 to 1997 and, on the vertical axis, the sensitivities to dollar/euro changes during 1999 to 2000.[21] If a currency lies above (below) the 45 degree line, it tended to track the euro's movements against the dollar in 1999 to 2000 more (less) closely than it tracked the mark's movements against the dollar during the period 1995 to 1997.

[21] The pre-euro period is limited to 1997 in order to exclude the transition period in 1998. Very similar results obtain when one compares sensitivities estimated for the period 1995 to 1998 with those estimated for the period 1999 to 2000.

Graph 6.1

Exchange rate sensitivities with respect to dollar/euro (mark) rate changes
1995–97 and 1999–2000



AU = Australia; BR = Brazil; CA = Canada; CH = Switzerland; CL = Chile; CZ = Czech Republic; DK = Denmark; GB = United Kingdom; GR = Greece; HK = Hong Kong; HU = Hungary; ID = Indonesia; IL = Israel; IN = India; IS = Iceland; KR = Korea; MX = Mexico; MY = Malaysia; NO = Norway; NZ = New Zealand; PH = Philippines; PL = Poland; RO = Romania; RU = Russia; SA = Saudi Arabia; SE = Sweden; SG = Singapore; SK = Slovakia; TH = Thailand; TR = Turkey; TW = Taiwan; ZA = South Africa.

The country points around the origin refer to Chile, Hong Kong, India, Saudi Arabia and Thailand.

Note: The horizontal axis reports exchange rate sensitivities defined as coefficients in the regression of the dollar exchange rate of a currency on a constant, the dollar/mark and dollar/yen exchange rates, estimated with daily data over the period January 1995–December 1997. The vertical axis reports sensitivities defined as coefficients in the regression of the dollar exchange rate of a currency on a constant, the euro/dollar and dollar/yen exchange rates, estimated with daily data over the period January 1999–October 2000.

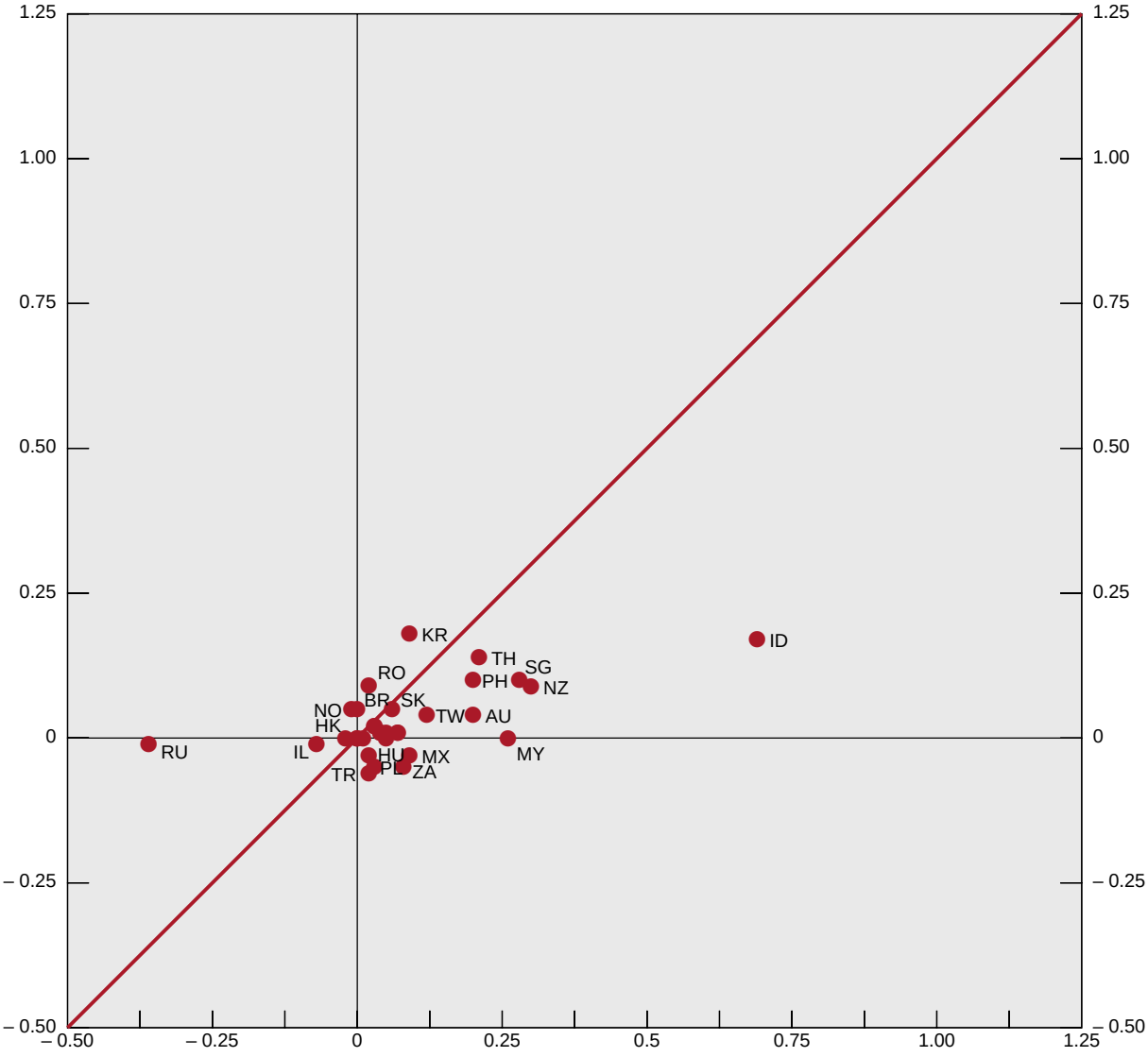
The evidence in the graph suggests that in terms of its gravitational force on other currencies, the euro bears a close resemblance to the mark. Currencies that closely track the euro's daily movements against the dollar include the Swiss franc, the Danish krone and the Slovak koruna. The dollar exchange rates of these currencies match about 90% of the movements of the euro against the dollar. The Swedish krona and the Norwegian krone track about 75% of the daily fluctuations of the euro against the dollar. The pound sterling and eastern European currencies such as the Czech koruna and the forint take an intermediate position between the euro and the dollar, as their dollar exchange rates

match about half of every euro/dollar movement. One noteworthy difference with respect to the period before 1999 is that the Swiss franc on average tended to appreciate (depreciate) when the mark appreciated (depreciated) with respect to the dollar. By contrast, overall since 1999 the Swiss franc has tended to move fairly synchronously with the euro against the dollar. Another interesting change is that the Australian and New Zealand dollars, which traditionally belonged to the dollar pole, are now taking an intermediate position between the dollar and the euro similar to that of the pound sterling.

Graph 6.1 also shows that the anchoring role of the euro is confined to Europe. In Asia, North America and Latin America, currencies tended to follow quite closely the dollar's movements against the euro. Since 1999, the dollar has also dominated daily changes of the rouble.

Graph 6.2

Exchange rate sensitivities with respect to dollar/yen rate changes
1995–97 and 1999–2000



For an explanation of the country codes, see Graph 6.1.

Note: The horizontal axis reports exchange rate sensitivities defined as coefficients in the regression of the dollar exchange rate of a currency on a constant, the dollar/mark and dollar/yen exchange rates, estimated with daily data over the period January 1995–December 1997. The vertical axis reports sensitivities defined as coefficients in the regression of the dollar exchange rate of a currency on a constant, the euro/dollar and dollar/yen exchange rates, estimated with daily data over the period January 1999–October 2000.

The sensitivities to yen/dollar changes during the two sample periods, 1995 to 1997 and 1999 to 2000, are shown in Graph 6.2. Based on this graph, one can conclude that most Asian currencies track the dollar very closely, while the anchoring role of the yen is very limited.

Graph 6.2 and Table 9 suggest that there is some similarity between the patterns of foreign exchange market turnover and the patterns of exchange rate sensitivities. The movements of emerging market currencies that trade mainly against the dollar are also influenced mainly by changes in the value of the dollar. The yen plays a minor role in domestic trading in local currency in Asia, as well as in the exchange rate movements of Asian currencies. In eastern Europe, a substantial fraction of currency trading involves the euro, and at the same time currencies in this region track the euro to a significant extent.

In summary, evidence from the composition of foreign exchange market turnover and from exchange rate co-movements suggests that the euro plays an important role as currency anchor mostly in Europe. The dollar plays a dominant role in Canada, and most emerging foreign exchange markets. This is true also for emerging markets in Asia and, albeit to a lesser extent, some currencies in eastern Europe. While these results broadly conform to expectations, it is an open question whether the euro will play a more important role as anchor currency in the future. Whether or not the euro's role will increase in the long run depends to an important degree on its role as a reserve and investment currency.

7. Conclusions

This paper has presented an overview of the impact of the introduction of the euro on Europe's financial structure. It has examined the changes set in train by the single currency relating to a number of different markets, and documented the key role of the euro in originating or catalysing trends that will have important implications for the future of financial architecture in the euro area.

The euro has boosted the deepening of many financial markets by lowering the hurdles to cross-border transactions. As a result, a pan-European interbank deposit market and a corporate bond market have emerged which are instrumental in allocating liquidity and funding corporations in the euro area and beyond. Asset managers have taken advantage of enhanced opportunities to achieve better risk and return trade-offs by pursuing investment strategies with a pan-European perspective. The pricing of equity market risk reflects this trend, as industrial sector specific effects have surpassed security specific effects in importance. European companies have been able to raise funds in the bond and equity markets at unprecedented rates, signalling a reduced role for bank loans, which had been their primary source of funding in the past.

However, these gains have been uneven across the spectrum of financial markets. Market segments where existing infrastructure was more flexible or more harmonised quickly blossomed to span the whole area and gain in liquidity and depth. By contrast, those segments that rely on structures characterised by strong national idiosyncrasies have not experienced the same transformation. Diverging market practices heavily influenced by historical precedent and legal and taxation frameworks present formidable obstacles to the development of a pan-European collateral money market. A reluctance to change local practices and rules combined with unresolved regulatory incompatibilities have been hampering the creation of a pan-European equity trading platform.

By removing many of the economic impediments to direct cross-border competition and transactions, the euro has exposed more clearly the costs of failing to achieve further harmonisation of such infrastructure. One sphere in which these costs of incomplete harmonisation are evident is the issuance of government bonds, where closer cooperation among government debt offices would greatly enhance the market's appeal to investors outside the euro area. Another sphere pertains to property rights and bankruptcy rules, which are currently heavily embedded in national legal frameworks, and which require a firm political commitment and extensive intervention.

Arguably the single most important influence of the euro, and one that is likely to have a more lasting effect, is its impact on investors' and fund raisers' attitudes towards capital market financing. The coincidence of the opening of investment and funding opportunities through the single currency with a generally favourable economic environment in Europe and the United States has been key to the growth of portfolio investment in Europe and a switch away from bank-intermediated credit.

A direct implication of these changes is a need for banks in the area to refocus their business strategies in line with these trends. Greater emphasis on the ability to supply their customers with a broader array of financial services is a principal element of these strategies. Increased focus on the development and/or distribution of long-term savings products, as well as access to capital market products such as mutual funds and broking services, are important for the retail market. The ability to provide payment and cash management services to corporates on a pan-European basis and to facilitate their access to capital markets through competent investment banking operations is the critical factor in the wholesale segment.

In foreign exchange markets, the euro appears not to have changed market functioning in a significant way. In particular, the euro resembles the mark in four respects: its weight in global foreign exchange market activity, the tightness of spreads, its volatility, and its role as an anchor currency. There is also no evidence that the arrival of the euro had a notable impact on foreign exchange market liquidity.

Annex: Country vs sector effects in pricing euro area equities

Following Heston and Rouwenhorst (1994), we used the stock market returns of a sample of large European companies in order to evaluate the relative importance of country and sector effects in the pricing of euro-denominated equities. More specifically, our sample of firms is constructed from the constituents of the FTSE Eurotop300 index. Among the constituents of the index in May 2000 we identified 170 companies that were from a euro area country. We were able to obtain share prices and market capitalisation figures for 158 of those companies for at least part of our analysis period, which extends from January 1990 to October 2000. Total monthly returns expressed in a common currency were calculated for each of these stocks for each month that they appear in our sample. Since prices for these stocks have been quoted in euros since the beginning of 1999, no conversion was necessary. For the period before that date, they were converted to marks using the end-of-month spot exchange rates. It should be noted that the conversion of the returns to a common currency does not have a material effect on the assessment of the importance of country effects as currencies in the region were quite stable for most of the 1990s (after the ERM crisis of 1992). Moreover, Heston and Rouwenhorst (1994) find that for the period 1978-92, arguably a period of greater exchange rate volatility than our sample period, European currency variability was too small to explain the variability of stock market prices and therefore to be an important driver of country-specific effects.

We created a set of dummy variables that denote the countries and sectors represented by our sample of companies.[22] The nine country dummies C_{ij} take the value of one if firm i is from country j and are equal to zero otherwise. The 10 sector dummies S_{ik} are defined in an analogous manner using the first digit sector classification of FTSE indices. For each month, the following regression is estimated for all the companies for which we have return data available:

A.1 $$R_i = \alpha + \beta_1 C_{i1} + \ldots + \beta_1 C_{i12} + \gamma_1 S_{i1} + \ldots + \gamma_1 S_{i8} + \varepsilon_i$$

The model is estimated by means of weighted least squares using the market capitalisation at the beginning of the month for the weights. In order to address the problem of exact collinearity that arises from the fact that each company by construction belongs to one industry and one country, we have restricted the market capitalisation weighted sum of the country (sector) factor sensitivities to equal zero:

A.2 $$\sum_{j=1}^{9} w_j \beta_j = 0 \quad , \quad \sum_{k=1}^{10} w_k \gamma_k = 0$$

The weights (w) are given by market capitalisation of the respective countries and sectors. Using this specification, the estimated coefficient of a country j effect can be interpreted as the excess return to a portfolio with sectoral exposure matching that of the overall FTSE index but with a country j "tilt" and no net exposure to countries other than j.

The average absolute country and sector effects plotted in Graph 4.1 are calculated as the weighted average of the absolute values of the individual effects using market capitalisation for the weights:

A.3 $$\begin{matrix}\text{Average} \\ \text{country effect}\end{matrix} = \sum_{i=1}^{N}\sum_{j=1}^{9} w_{ij}\left|\beta_{ij}\right|, \qquad \begin{matrix}\text{Average} \\ \text{sector effect}\end{matrix} = \sum_{i=1}^{N}\sum_{j=1}^{10} w_{ik}\left|\gamma_{ik}\right|$$

[22] The countries represented in our sample are: Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal and Spain. FTSE classifies firms in one of 10 main industrial sectors: resources, basic industries, general industrial, cyclical goods, non-cyclical goods, cyclical services, non-cyclical services, utilities, financials and information technology.

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