Practical issues arising from the €euro

December 1999

Bank of England

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SHOULD WE INVOICE IN EUROS?

Practical issues arising from the euro

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Cartoons by Basil Hone

INTRODUCTION

1 This is the twelfth edition of *Practical Issues*, and the second since the euro was introduced at the beginning of the year. Whereas the editions before the launch were designed to help those preparing to use the euro, the subsequent editions are designed to provide a London perspective on the development of the euro-denominated financial markets, which are evolving rapidly, and the supporting financial infrastructure, where significant change is again in prospect. The planning and preparation for potential future UK entry are also covered, and will become a greater focus in future. We deliberately do not cover economic aspects of the euro, including the development of the economies of the euro area, or Member States' macroeconomic and structural policies, but confine our scope to practical issues.

2 This *Practical Issues* has been prepared by the Bank of England with the co-operation of, and in conjunction with, the major international market firms, of many nationalities, all of which have a significant presence in London. These firms have capitalised on their highly successful technical preparations in London for the euro, which have subsequently paid dividends in terms of the scale of euro business captured. As explained in *Chapter 1*, all the available evidence confirms that London has to date fully maintained its position as the main international financial market in the European time zone, notwithstanding the UK's position outside the euro area. London is important for the EU as a whole, given the contribution which the London markets are making, including to the international use of the euro. The key to the future is that the City of London should remain competitive in global terms.

3 Attention on the euro has tended to concentrate this year on the exchange rate and short-term interest rates. But the real challenges for international market firms are the structural changes in wholesale financial markets that the euro has brought, which are covered in *Chapter 2*. Whilst the euro is not the only factor at work, in many cases it is acting as a catalyst for change.

- Implementation of the operational framework of the Eurosystem is important for London practitioners, because of its market impact and because it provides the context within which the euro markets are developing.
- The unsecured euro money market is fully integrated already, but this is much less true of the secured market, where significant obstacles to full integration are likely to remain for some time.
- There has been a significant decline this year in foreign exchange market turnover, though less so in London than across the euro area, as a result of the increased use of electronic broking systems, a decline in active position-taking, and a reduction in the number of major players following banking consolidation. Despite this, the euro foreign exchange market remains liquid.
- EMU has given an important boost to the integration of European capital markets, and accentuated further the trend towards securitisation and the associated

disintermediation of the banking sector. This is clearly evident from the spectacular increase in corporate bond issuance in 1999, and the related increase in demand by European companies for external credit ratings.

- With EMU serving as a catalyst, many euro-area equity portfolios are beginning to be diversified away from their previous heavy focus on local markets to other euro-area markets, particularly through the allocation of new money flows.

4 *Chapter 3* is concerned with the financial infrastructure which underpins the euro markets.

- The most important development this year in payments is the extensive use which has been made of TARGET, as the system used by banks for the vast bulk of their euro payments: this is very welcome to all European central banks because it contributes to reducing systemic payment risk, and makes for a safer European financial market-place.
- The UK system, CHAPS euro, is also making a significant contribution, with a continuing large share of cross-border euro payments, reflecting the scale of euro business being conducted in UK wholesale financial markets.
- Life has been made more complicated for bank treasurers because of the number of alternative euro payment routes. Sophisticated controls are required to manage gross and net payment flows with a wide range of counterparties, between different payment systems, and with intraday timing constraints. Banks would welcome better information on the availability of some RTGS systems.
- Looking to the future, the ECB has initiated a debate on the longer-term development of TARGET. This needs to be planned in the interests of users, and to take account of the major changes under way in foreign exchange, and in securities clearing and settlement.
- Within the securities markets, cross-border trading and the associated use of collateral are increasing market demand for a pan-European infrastructure for securities clearing and settlement which is safe, reliable, and cost-effective. In response, a number of far-reaching proposals have been announced recently by infrastructure providers. They involve new ownership structures; further integration of their systems, through the development of links or cross-border alliances; upgrades to services, and the technical processes which support them; and a focus on new markets. Recent developments are viewed as moving in the right direction, even if the ultimate prospect of a single settlement system for euro securities remains remote.
- Exchanges are increasingly facing competition from electronic communications networks, which are often supported by the exchanges' principal users. Exchanges are responding to this competitive threat by expanding the range of markets they serve, enhancing the services they provide and, in many cases, changing their governance structure to help them adapt more easily.

5 *Chapter 4* provides an update on the use of the euro in the UK beyond the City. This has so far been very low. Use may, however, begin to pick up in the near future, particularly as EMU-11 currencies are converted into euro, but also possibly in place of other currencies including sterling.

6 *Chapter 5* describes recent work on preparations for possible UK entry, concentrating on issues of interest to the City, for which the Bank has been given responsibility.

- Within HM Treasury's overall project structure, the Bank continues to co-ordinate planning in the financial sector for possible UK entry, through a new City Euro Group. Work is currently focusing on the interconnections between wholesale market and retail financial preparations, the development of CHAPS, CRESTCo's plans for the changeover, and the details of the changeover which would be required in the area of fund management.
- The Bank is in regular contact with the ECB and national central banks in the euro area to learn as many lessons as possible from the first wave for possible UK entry, many of which were covered in the June *Practical Issues*. The Bank has also recently visited the other 'out' national central banks to learn how Denmark, Greece and Sweden are planning to conduct their changeover to the euro, if they join EMU. In each country, planning is in hand; the longest lead times relate to preparations in the public sector, retail financial services and for the production of sufficient euro notes and coin.

7 *Practical Issues* is available on the Bank's website (www.bankofengland.co.uk), and copies may be obtained from the Bank's Public Enquires Group (tel no: 020-7601 4012; fax no: 020-7601 5460). Comments are also welcome, and should be addressed to John Townend, Director for Europe, Bank of England, Threadneedle Street, London EC2R 8AH (fax: 020-7601 5016 or e-mail: john.townend@bankofengland.co.uk). We plan to continue publishing *Practical Issues* on a broadly semi-annual basis.

IS IT ALL RIGHT TO WISH THE CITY OF LONDON ANOTHER PROSPEROUS NEW YEAR?

CHAPTER 1: THE CITY SINCE THE LAUNCH OF THE EURO

1 Almost a year has passed since the launch of the euro. This Chapter looks at how the City has performed. It is based on our regular contacts with international market firms, and the statistical information provided by market associations and other sources. Many of the themes introduced here are developed later in this edition of *Practical Issues*.

What is the City's euro market share?

2 All the available evidence indicates that, since the launch of the euro, London has fully maintained its market share. Statistics for the change in London's market share are not yet available in every market. However, the latest figures serve to demonstrate the extent to which the City is not just a UK asset, but an asset for the EU as a whole.

- *Bank representation* London has more foreign bank branches, subsidiaries and representative offices than any other financial centre (537 at April 1999). The latest equivalent figures for Frankfurt, Paris and New York are 242, 187 and 275 respectively.
- *Payments* CHAPS euro accounts for around €62 billion of cross-border payments per day (around 18% by value of all cross-border payments sent through TARGET in September). Of all the individual EU RTGS systems, only ELS (the German RTGS system) has a higher proportion. CHAPS euro's share of business in TARGET is all the more striking since the euro is a foreign currency in the UK and banks in the UK are also heavy users of other euro payment systems (such as the EBA's EURO1 system). CHAPS euro has proved one of the most efficient and resilient RTGS systems in the EU since the beginning of the year.
- *Money market* The Wholesale Markets Brokers' Association (WMBA) estimates London's market share of the overnight euro deposit market (broked and interbank combined) at around 20%.
- *Foreign exchange* The latest BIS survey gives London's global market share of foreign exchange turnover as 32% ($637 billion per day), compared with 5% for Germany and 4% for France. The comparable figure for the US is 18%. Foreign exchange turnover is estimated to have declined globally since the introduction of the euro, owing to the disappearance of European currency pairs and risk aversion in the market since the events of autumn 1998. The overall decline in turnover between the euro and the other major currencies seems to have been around 15-30%. But overall turnover has declined less in London (by some 5-10%) than the euro area, and ticket sizes have increased. The market share of large firms, most of which are based in London, has increased at the expense of middle-sized firms.
- *Derivatives* London is heavily involved in both over-the-counter and exchange-traded derivatives. In the over-the-counter derivatives markets, which are growing faster, the same BIS survey gives London's global market share as 35% ($170 billion per day), compared with 10% for France and 7% for Germany (and

19% for the US). In the case of exchange-traded derivatives, over 90% of the euro short-term interest rate (STIR) contracts on the three major European derivatives exchanges are now traded on LIFFE. Eurex has been the largest derivatives exchange in Europe by *volume* since the repatriation of the Bund contract to Frankfurt last year, though Bund futures are extensively traded remotely from London. But the notional *value* of interest rate (STIR and bond) and equity index contracts is much higher on LIFFE than on both Eurex and ParisBourse.

- *Bank lending* The BIS estimates that London originates nearly 19% of cross-border international bank lending, with $1,777 billion outstanding at the end of the second quarter of 1999, compared with 7% for France and 9% for Germany. (The comparable figures are 9% for the US, and 11% for Japan.)
- *Bonds* London's market share of underwritten euro-denominated Eurobond issuance in the first nine months of 1999 is estimated at 54% (or the equivalent of $207 billion out of total issuance of $380 billion). London's market share has increased from 48% in the first quarter to 58% in the third quarter. These figures exclude domestic issuance and use the location of the bookrunner as a proxy for the centre from which bonds are issued. British Invisibles estimates that London had a global market share of secondary trading in the Eurobond market in 1998 of around 70%.
- *Equities* More foreign companies are currently listed on the London Stock Exchange (LSE) than on any other exchange (522 at the end of 1998). On the basis of calendar 1998 data, around 90% of foreign equity turnover in Europe goes through member firms on the LSE. In the first nine months of 1999, equity turnover in euro has accounted for 38% of the total value of business reported to the LSE by its member firms.
- *Fund management* London is the largest global centre for institutional equity management, with $2,178 billion of institutional equities under management at the end of 1998: more than Zurich, Paris, Amsterdam and Frankfurt combined. British Invisibles estimates that around 20% of UK fund managers' portfolios are invested in non-UK securities.
- *Insurance* London is one of the largest centres for insurance business, with 22% of world marine insurance and 27% of aviation insurance business. It is the largest global centre for reinsurance.

3 The City of London is defined as including the Square Mile, Canary Wharf and financial institutions involved in wholesale activity in other parts of London. It is not always possible to separate the City's market share of euro activity from its global market share, nor the City's market share from the market share of the UK as a whole. But the figures nevertheless give a good indication of the overall position.

Where are international market firms basing their euro activities?

4 This is a difficult question to answer definitively, partly because the location of wholesale activity is increasingly hard to pin down – a transaction can be carried out between counterparties in two different locations on behalf of a client in a third and settled in a fourth – and partly because the wholesale European market-place is itself changing

more rapidly than ever before. The competitive pressure for change comes as much from the growth in electronic trading, global deregulation and consolidation throughout the financial services industry, as from the introduction of the euro. But in Europe, the euro has acted as a catalyst for changes that might otherwise have taken much longer to occur.

5 For most international market firms, what is important is where their key staff are located, because that is where most value is added. The number of staff dedicated to wholesale financial activity in London has increased during the course of the year, despite staff cuts in a few firms as a result of mergers. In the case of a number of international market firms, the proportion of their European-based investment banking staff in London is around 80%. But the proportion in London inevitably varies from firm to firm, and is influenced by whether the firm has a retail base in a particular European country. It is also important to recognise that international market firms can shift the location of key staff quickly, if they consider that there is a competitive advantage in doing so.

6 *Treasury and risk management* In many cases, international market firms appear to be consolidating their European treasury and risk management in one centre: most often London. They consider that risk is easier to control if it is managed in one centre. Many of them have chosen London because of the liquidity in its markets and their commitment to international activities in general, not just in euro, there. Some international market firms in London consider that being able to make payments where the ECB is located (in Frankfurt) can give them a presentational advantage in winning new payment business from clients, even though the bulk of their processing work is done elsewhere. But many use CHAPS euro and the EBA's EURO1 system to make their euro payments in and from London, because these systems are so efficient.

7 *Trading* The location of international market firms' euro trading activities tends to be the same as their risk management activities, as the same factors apply: ie the need for liquidity and the ability to exercise control over the risks of the business. This is clearly the case with foreign exchange trading, where the (€) product traded has no national identity. But even in the case of euro securities and derivatives, where the product does have a national identity (eg the German Bund or French OAT), trading takes place over-the-counter in London and by remote access to infrastructure located abroad. In a similar way, business in EURIBOR-based short-term interest rate contracts is overwhelmingly concentrated on LIFFE, even though EURIBOR is a price source for the euro area.

8 *Capital markets* The euro capital market activities of most international market firms are based in London, where expertise in credit products and equities is concentrated. But these firms consider that their sales and marketing teams also need to be near the client base, on the grounds that long-term client relationships are as important in winning new issue mandates as price and track record. International market firms expect the fastest growth in their client base to be in the euro area, both for mandates (for new issues of equity, corporate bond issues, as investors move down the credit curve, and syndicated bank loans) and as outlets for the distribution of securities. The Pfandbrief market (for German mortgage-backed and other securities) has developed mainly within Germany, and similar markets are planned elsewhere in the euro area. The Neuer Markt (for the equity of small, often 'high tech', German companies) has also shown considerable growth, and the Mittelstand (of family-owned businesses in Germany) is seen as a source of demand for

capital market services in future. In some cases, staff covering clients in the euro area travel from London. In other cases, they are located in offices across the euro area. But in most cases, the underlying sector skills (ie industry coverage) and product coverage (eg investment grade corporates, high-yield securities, asset-backed securities, syndicated loans) are centralised in London.

9 *M&A* The introduction of the euro has brought a substantial increase in merger and acquisition (M&A) activity in the EU: in the third quarter, for example, it was greater than in the US. So far, European M&A activity has been mainly within national borders, although an increase is also expected across borders. The top US-owned investment banks in Europe are generally recognised to have a leading position in the market, because of their track record. A number of European-owned players hope to challenge them, leveraging off existing banking relationships. Some see a competitive advantage in providing debt and equity capital markets and M&A services together. Others see themselves as niche players. In both cases, however, firms have been building up their core M&A staff both in London and across the euro area. They also anticipate substantial growth in private equity business in the euro area.

10 *Fund management* The main expertise in international fund management in Europe is based in London. Client coverage is nevertheless needed across the euro area to help win pension fund and other institutional mandates, and to build up a retail franchise (eg through unit trust sales), among investors seeking to diversify from a national to a pan-European basis. Although portfolio rebalancing has so far been slower than expected, the potential scope for this is substantial, particularly when anticipated institutional cash-flow is taken into account. London-based fund managers are well placed to compete for new business, given their track record in managing international portfolios. But other fund managers (eg in Zurich and Amsterdam) have a long international track record too, and a number of institutions are setting up new fund management operations in the euro area (eg in Munich) to compete, using the new pan-European benchmarks.

11 *Research* The main expertise in financial market research is based in London, both in analysing credit risk for the euro bond market, and on international stock sectors (eg telecoms and consumer goods) and individual stock-picking for the equity market. Competition (eg in the technology sector) is intense. In the case of research, distance from the client base is not a problem, as use of the internet facilitates the international distribution of research material. Some analysts also make ‘virtual’ contributions to client presentations, so that they can appear in more than one place at once.

12 *Support operations* Complex back-office processing is generally handled by international market firms in close physical proximity to the trading desk, for control reasons. However, ‘core’ (straightforward) processing need not be in the same location. Staff costs are a key consideration in deciding where it should be. In many cases, processing is located out of London (eg in the south-east of England), and in some cases out of the UK (eg in Dublin). There is a possibility that, in time, some international market firms will move their core processing out of Europe altogether. Because of the squeeze on profit margins from new technology, some international market firms are beginning to consider the business case for setting up ‘processing utilities’, either jointly owned by several firms or by an IT specialist company. They then have to decide whether to contract out to a processing utility their own

core back-office functions, or to try to turn them into a revenue-earning centre by winning other business from outside.

What influences where market firms will locate their activities in future?

13 Will London's role as a euro centre continue to grow? The answer given by the broad range of international market firms is that London's role does not primarily depend on whether the UK is 'in' or 'out' of EMU, though they consider that continued access, without discrimination, to the Single European Market is very important. They believe the answer depends on whether London remains internationally competitive. Of course, this is not just a function of London's activities in the euro markets, or competition between London and other financial centres in Europe. It is also a function of London's competitiveness in global terms (eg vis-à-vis New York), and of the impact of technology on the future of financial centres in general. The main factors which affect market firms' choice of location include the following.

14 *Critical mass* London benefits from a critical mass of skills, financial services and professional support services (eg in law, accounting, communications and property services) at present. Most international market firms regard critical mass as important, because they consider that key staff will add more value if they are concentrated in one location close to other market firms. This helps limit risk by making it easier to control, and promotes innovation by encouraging the exchange of ideas, both within market firms and in contact with clients. It is a good sign for the future that international market firms in London are at the forefront of innovation in the structure of the euro markets.

15 *People* One of London's key advantages is the pool of financial talent available. International market firms consider that salary levels in London are comparatively high, but are necessary to attract the right talent. In addition, indirect staff costs are low in relation to continental Europe, and personal tax rates are low. A very important factor for market firms is the flexibility in London to 'hire and fire'. Market firms are more likely to take on staff, if they know that they can lay them off, if necessary. International staff are at home in English as the language of international finance. Many are attracted by the quality of life in London, though some regard a period in London as a stepping stone to a future career elsewhere in Europe. Housing costs are considered high and, while London benefits from good international transport links, traffic and airport congestion is frequently cited as a negative factor.

16 *Infrastructure* An efficient financial infrastructure is essential for a financial centre. TARGET and the EURO1 system have increased the efficiency and safety of cross-border wholesale payments. However, charges for cross-border securities transactions in Europe are still much higher than for domestic transactions, and much higher for domestic transactions in Europe than the US. National restrictions (eg the requirement to list and settle in the same location) still serve to keep costs artificially high. Eventually, the combination of the euro and electronic trading, clearing and settlement across borders is expected to force costs down. The question for international market firms is whether exchanges (like LIFFE and the LSE) are adapting sufficiently quickly to maintain a prominent role, or whether their place will be taken by competitors (like NASDAQ) or new electronic communications networks (ECNs) with lower barriers to entry. But international market firms do not expect

the outcome directly to affect London's position as a financial centre. They are themselves involved in all the main new infrastructural developments. Ultimately, the easier it is for them to trade electronically, the less important is the physical location of exchanges and clearing houses. Their main concern is that the variety of new initiatives does not lead to a fragmentation of liquidity. Many see a single electronic trading platform as a goal. But they recognise how difficult this will be to realise.

17 *Regulation* London provides a sound legal framework, a low-tax corporate environment and a level playing field for international market firms, regardless of the nationality of ownership. International market firms look for a regulatory framework which is fair, light rather than intrusive, and quick to adapt to market innovation. Most of them consider that the new regulatory arrangements in the UK are bedding down well, and that the direct costs of regulation are internationally competitive at present. The costs of compliance are more difficult to estimate, though firms that can demonstrate they manage their risk effectively are subject to less supervisory attention.

18 *Global competition* It would be a mistake to consider competition between financial centres just in European terms. Competition is global, and many international market firms see the main long-term competition for London coming from New York. For large US commercial and investment banks, the management of their operations in New York and London is closely integrated, and the franchise is a global brand. Some of the structural changes taking place in the euro markets build on US market practice, and transaction costs in the US are a benchmark against which to measure transaction costs in Europe. Given the extent of global competition, it is all the more important that the EU remains internationally competitive. Many consider that a new EU withholding tax on savings would drive parts of the bond market not just out of London, but out of the EU altogether.

19 *Technological change* There is a separate question in the longer term about whether and which financial activities will continue to be concentrated in financial centres at all, given the ability to trade electronically by remote access. Until now, the effect of improved communications has been to encourage the development of larger financial centres by giving them access to a wider catchment area. As ECNs do not have a physical base, they do not in themselves need to affect where activity is based. Most market firms expect that their complex product-based activities, where most value is added, will remain in established financial centres, like London. But where a financial product can be 'commoditised' (ie simplified and standardised), it can be sold over electronic communications networks (eg the internet) from anywhere, and reach a wider client base, which helps to offset the shrinking margins that commodisation brings. Firms also have the facility to choose the location in which they book a financial transaction. Core processing does not need to be carried out in a financial centre at all, if it can be carried out more cost-effectively elsewhere.

20 How do all these factors add up? Healey & Baker's annual survey of 'Europe's top cities', published on 20 October, is based on responses from senior representatives, with responsibility for location, in around 500 large industrial, trading and services companies in Europe, rather than the financial services sector as such. It nevertheless gives an indication of how respondents in nine European countries decide where to locate their businesses. The factors that they consider are listed in order of importance in the table below, along with the ranking of London, Paris and Frankfurt (out of 30 European cities) in each case.

London has maintained its position in the survey as the leading European city in which to locate a business, and regained its position (from Frankfurt in 1998) as the perceived future financial capital of Europe over the next five years.

TABLE 1: SURVEY OF EUROPEAN CITIES

	London	Frankfurt	Paris
Access to markets and clients	1	3	2
International transport links	1	3	2
Quality of telecommunications	1	2	3
Costs and availability of staff	8	17	15
Business climate created by government	2	17	16
Best value office space	8	15	15
Availability of office space	1	11	4
Languages spoken	1	6	4
Internal transport	1	3	2
Quality of life	3	23	2
Freedom from pollution	18	19	23

Source: Healey & Baker

Conclusion

21 It is early days, and market practitioners in London are not complacent. But all the evidence available to date indicates that, since the launch of the euro, London has fully maintained its market share. International market firms believe that the City's global competitiveness depends on: its critical mass of skills, financial services and professional support services; the pool of financial talent available; an efficient financial infrastructure; and a regulatory framework which is fair, appropriately light and quick to adapt. The City of London is determined to remain competitive in future.

ABN·AMRO Bank

Bank of America

THE BANK OF NEW YORK

BANK OF SCOTLAND

BNP BANQUE NATIONALE DE PARIS

PARIBAS

BARCLAYS

CAZENOVE

CHASE

CITIBANK

COMMERZBANK

CREDIT SUISSE FIRST BOSTON

Deutsche Bank

Dresdner Kleinwort Benson

Goldman Sachs

HSBC

ING BARINGS

Lazard

LEHMAN BROTHERS

Lloyds TSB

MERCURY ASSET MANAGEMENT

Merrill Lynch

JPMorgan

MORGAN STANLEY DEAN WITTER

NatWest Group

NOMURA

N M ROTHSCHILD & SONS

The Royal Bank of Scotland

SALOMON SMITH BARNEY
A member of citigroup

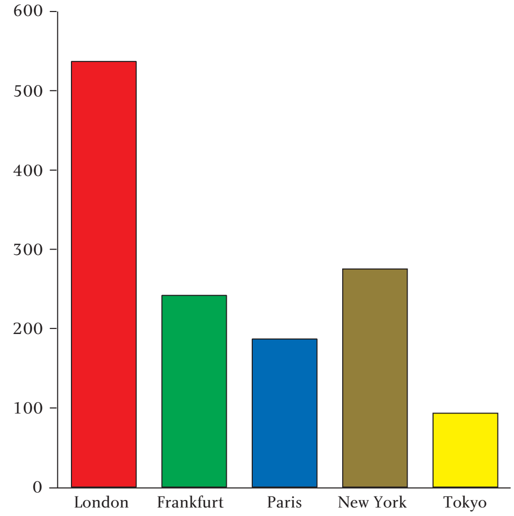
Schroders

SG

Warburg Dillon Read

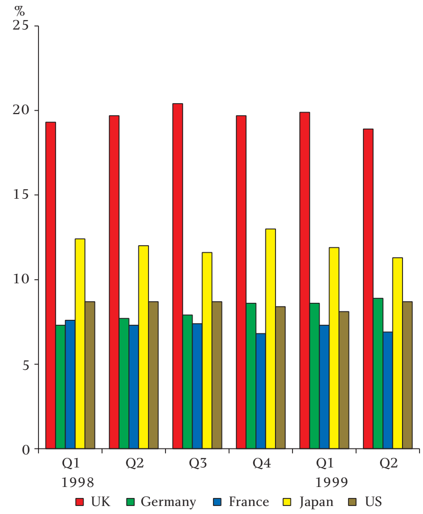
LONDON AS AN INTERNATIONAL FINANCIAL CENTRE

NUMBER OF FOREIGN BANKING INSTITUTIONS



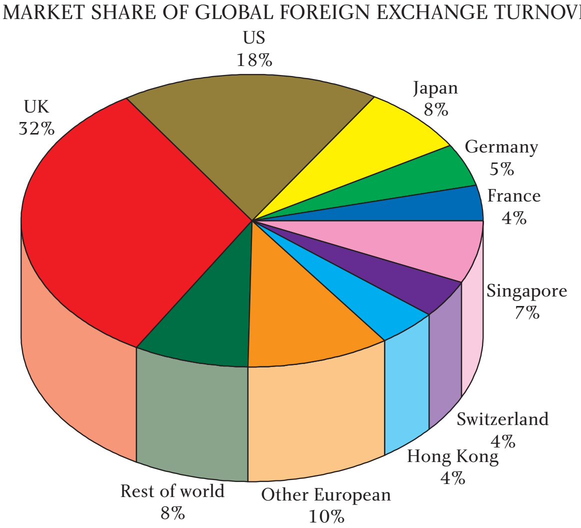
Source: individual country supervisory authorities (1999)

MARKET SHARE OF CROSS-BORDER LENDING



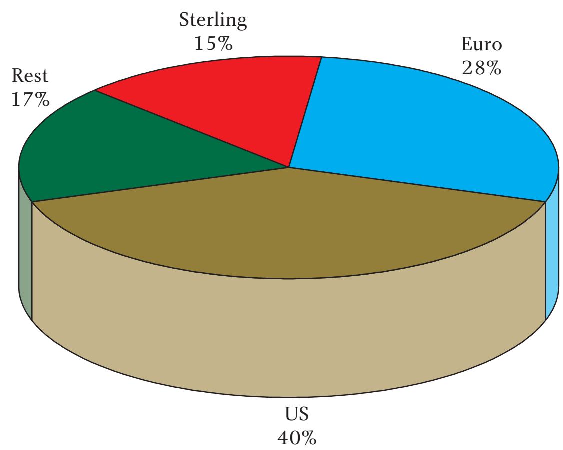
Source: Bank for International Settlements, Quarterly Review (International Banking Market Developments)

MARKET SHARE OF GLOBAL FOREIGN EXCHANGE TURNOVER



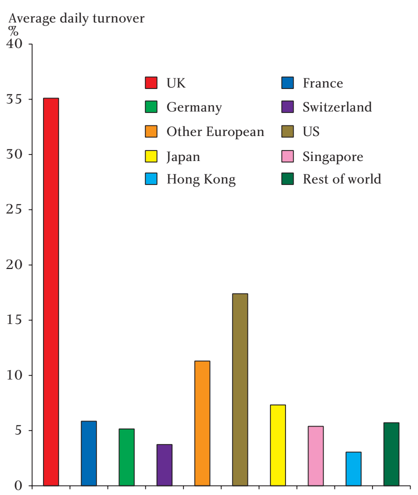
Source: Bank for International Settlements, Triennial Survey (April 1998)

UK BANKS' BUSINESS WITH NON-RESIDENTS



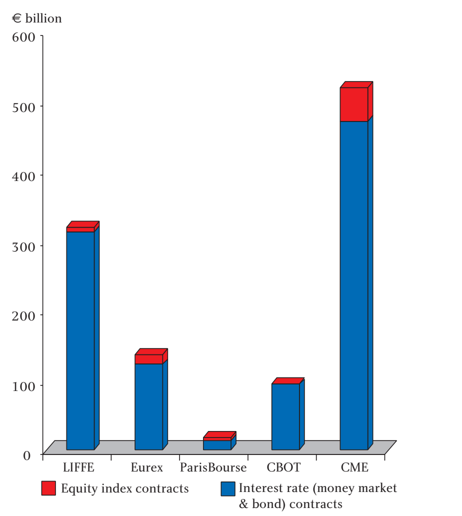
Source: Bank of England (end-September 1999)

SELECTED OTC DERIVATIVES MARKET ACTIVITY: COUNTRY SHARES



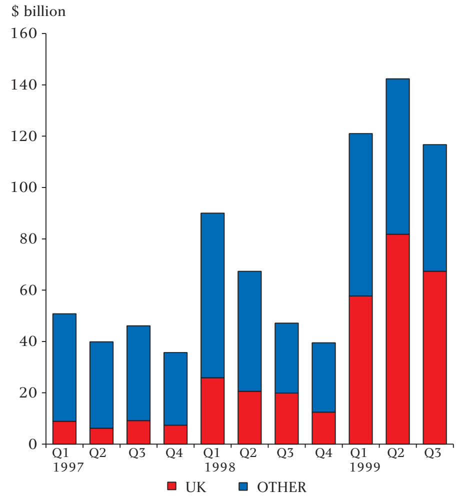
Source: Bank for International Settlements, Triennial Survey (April 1998)

AVERAGE DAILY NOTIONAL VALUE OF TURNOVER OF INTEREST RATE & EQUITY INDEX DERIVATIVES CONTRACTS



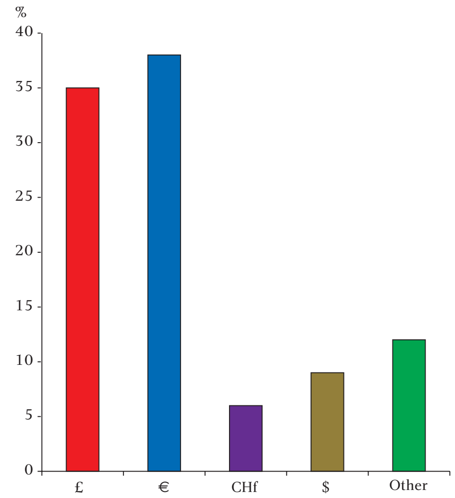
Source: Bank of England (average June-October 1999 inclusive)
Note: excludes commodities contracts and contracts on individual equity options

EURO-DENOMINATED EUROBOND ISSUANCE



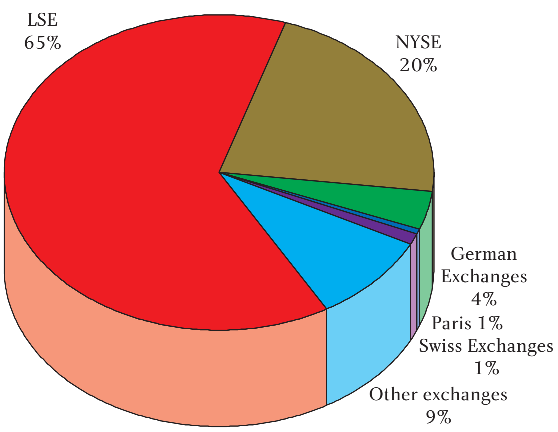
Source: Capital DATA Bondware
Note: approximation based on bookrunner location

VALUE OF EQUITY TRADING ON LONDON STOCK EXCHANGE BY CURRENCY



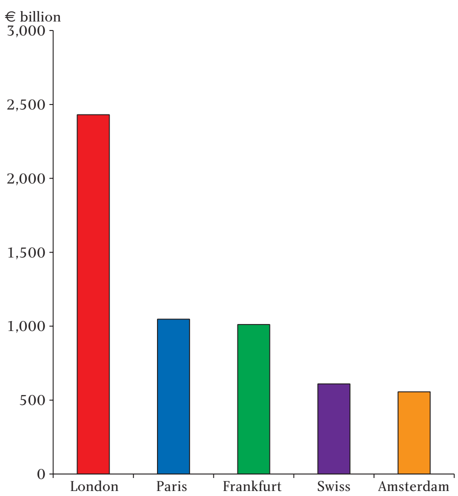
Source: London Stock Exchange (1999 Q1-Q3)

MARKET SHARE OF FOREIGN EQUITY TURNOVER ON SELECTED EXCHANGES



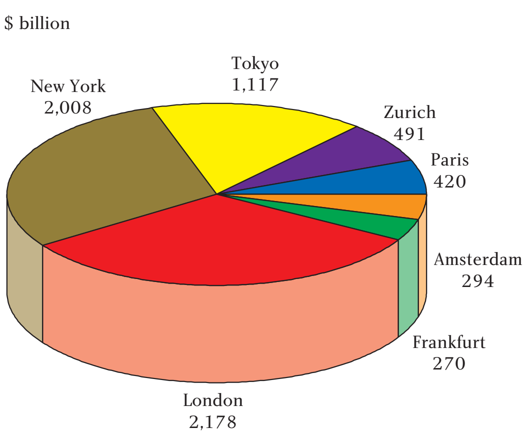
Source: London Stock Exchange and other major exchanges (end-1998)

MARKET CAPITALISATION ON SELECTED EUROPEAN EXCHANGES



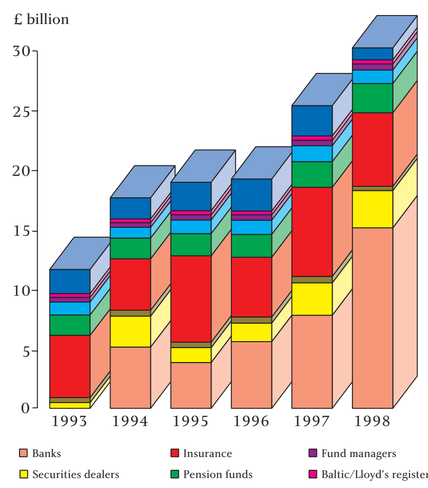
Source: Federation of European Stock Exchanges (September 1999)

HOLDINGS OF INSTITUTIONAL EQUITIES IN LEADING FINANCIAL CENTRES



Source: Thomson Financial 'International Target Cities Report' (1998)

NET OVERSEAS EARNINGS OF UK FINANCIAL INSTITUTIONS



Source: British Invisibles' 'City Table'

CHAPTER 2: THE EURO MARKETS

A MONETARY POLICY OPERATIONS OF THE EUROSYSTEM

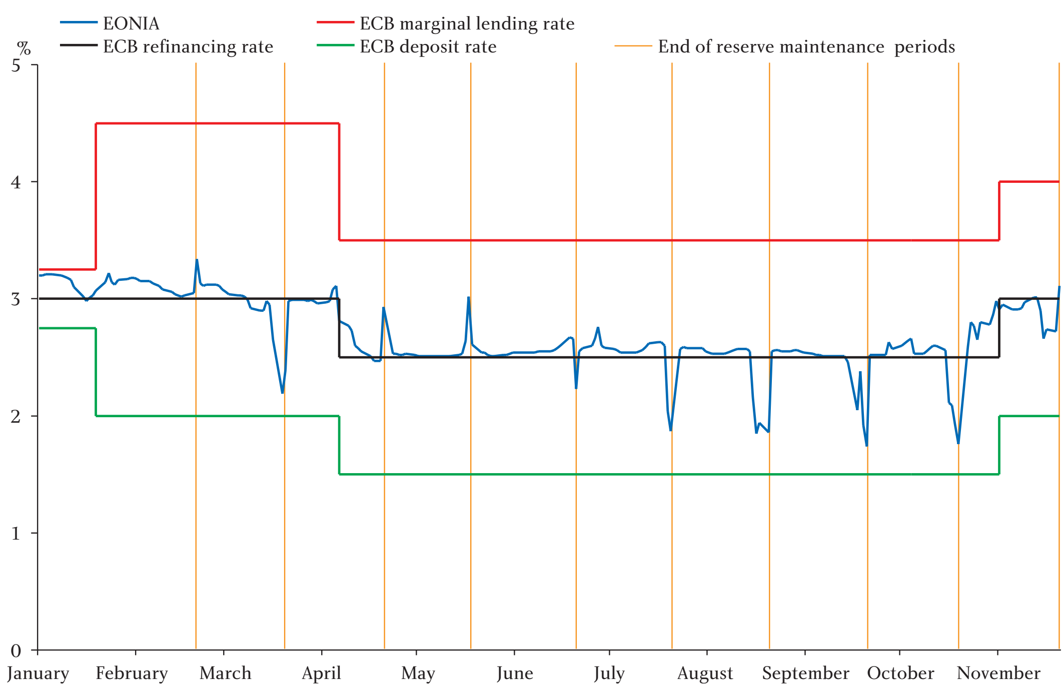
1 This section provides an overview of the monetary policy operations of the Eurosystem in 1999, with a particular focus on the second half-year. The Eurosystem comprises the European Central Bank (ECB) and the 11 national central banks (NCBs) of the participating countries. The Eurosystem operational framework is described in various ECB publications, including *The General Documentation on ESCB Monetary Policy Instruments and Procedures*, September 1998 (available on the ECB website); a summary was also provided in the June 1999 *Practical Issues*.

Eurosystem operations during 1999

Official rates and short-term market interest rates

2 *Official rates* On 4 November, the ECB Governing Council decided to raise its three main interest rates by 50 basis points. The fixed rate on its main refinancing operations (MROs) was raised to 3%, while the rates on its deposit and marginal lending facilities were increased to 2% and 4% respectively. The Governing Council took the view that the balance of risks to price stability in the euro area had gradually shifted upwards over the summer. The move was very much in line with market expectations. Official rates had previously remained unchanged since 8 April, when the repo and deposit rates were lowered by 50 basis points, and the marginal lending rate by 100 basis points (Chart A).

EUROSYSTEM RATES AND EONIA **CHART A**



Source: ECB and EBF

3 *Overnight interest rates* Very short-term interest rates, measured by the Euro Overnight Index Average (EONIA) have remained close to the ECB main refinancing rate throughout the year (Chart A). (EONIA is computed by the ECB as a weighted average of all overnight, unsecured lending transactions in the interbank market within the euro area by a contributing panel of 57 banks: the same panel is used for EURIBOR.) On average, EONIA has been only around 2 basis points above the MRO rate. A pattern can be observed from the data for the five reserve maintenance periods during June to October. While EONIA remained above the ECB rate for most of the time, it spiked down during the last few days in each of these maintenance periods. However, for 1999 as a whole there is no regular pattern. From the observed interest rate data, ECB liquidity management has not been geared to deliver either consistently negative or consistently positive differentials between EONIA and the main refinancing rate at the end of reserve maintenance periods. (In this respect, the Eurosystem differs from the German money market prior to 1 January 1999, where overnight rates used to be consistently above the repo rate towards the end of maintenance periods.)

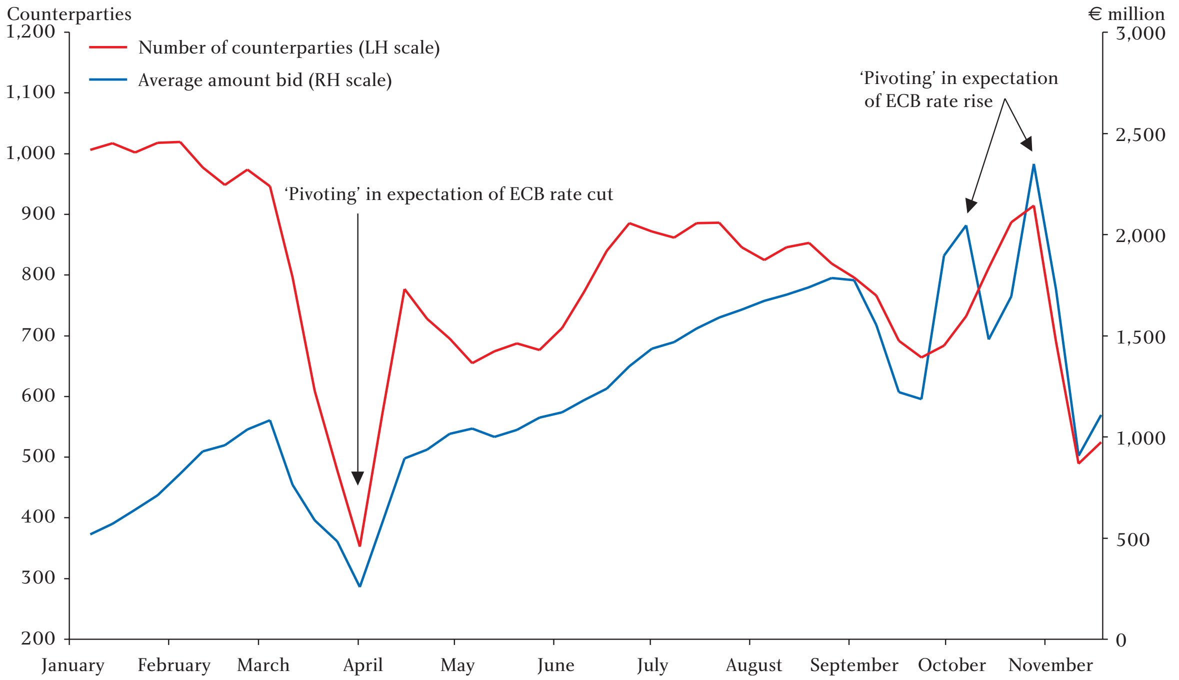
Refinancing operations

4 The largest part – some 75% – of Eurosystem liquidity has been provided to credit institutions through the weekly MROs, with the monthly longer-term refinancing operations (LTROs) providing the bulk of the remainder. The net liquidity effect of standing facilities was on average negligible.

5 In relation to MROs, the main subject of discussion has been the large and increasing amount of overbidding by credit institutions in the fixed-rate tenders. In October, for example, the ECB provided less than 5% of the total amount bid by counterparties. Despite a slight decrease in the average number of bidding institutions during the year, the total

NUMBER OF COUNTERPARTIES AND AVERAGE AMOUNT BID **CHART B**

(rolling average)



Source: ECB

amount bid has tended to increase. This trend has been interrupted on occasion by 'pivoting', when the level of counterparties' bids was affected by expectations of an imminent rate change (Chart B). The largest bidders in each country (the top five plus those submitting bids in excess of €5 billion) are winning the lion's share of total allotments. A relatively small number of large bidders thus dominates the bidding process.

6 *MRO counterparties* In principle, all credit institutions are potential counterparties of the Eurosystem (over 8,000), although they have to fulfil certain eligibility criteria set partly at a Eurosystem level and partly by the individual NCBs. The number of credit institutions which has actually signed up as counterparties (around 2,500 for refinancing operations), albeit large, is much lower than the potential maximum number. And, of these, only around 800 on average are active in the weekly MROs. In deciding whether to apply to be a counterparty, and subsequently how actively to use that status, credit institutions are influenced by a number of factors. First, they may feel that the benefits of having direct access to central bank funds do not outweigh the costs involved, which may include signing contractual agreements, purchasing IT systems, or even changing asset portfolios in order to hold eligible collateral. Second, it appears that smaller banks often prefer to stick to traditional banking relationships and access liquidity from larger banks rather than the central bank. The structure of the euro money market is dealt with more fully in Section B.

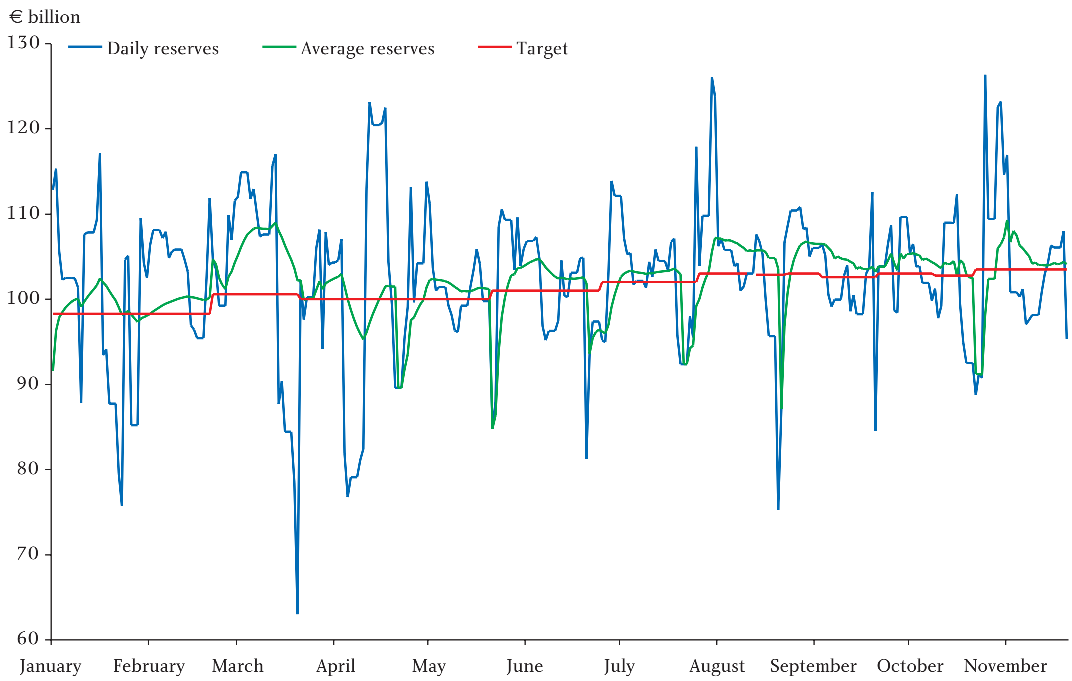
7 *LTROs* For most of 1999, the ECB provided a fixed amount of €15 billion through its monthly LTROs. These operations are conducted on the first Wednesday of each reserve maintenance period. The ECB has throughout used variable-rate tenders (with, since end-March, a multiple-rate allotment). The marginal rates have in practice been close to the rate on MROs, although the rate for the end-October tender was notably higher (3.19% as opposed to 2.5%), reflecting expectations of a near-term increase in official rates and the Y2K year-end spike. Although the LTRO instrument was intended to give the large number of smaller banks easier access to central bank funds, the number of active counterparties in LTROs (on average some 300 or around 12-13% of the number of eligible counterparties) has been much lower than for MROs, and has declined during the year.

8 *Y2K* A Eurosystem communiqué, published on 11 August, emphasised its preparedness for the transition to the year 2000. The operational framework was, from the outset, designed to ensure maximum flexibility in the implementation of monetary policy; and has built-in mechanisims to deal with any level of liquidity demand from market participants (in particular, but not only, through its standing facilities). The ECB also announced in the course of 1999 a number of technical adjustments to its MROs and LTROs around the turn of the year. First, the maturity of the 29 September LTRO was brought forward from 30 December to 23 December, with a similar adjustment to the start date for the December tender. Second, no MRO will be held in the first week of the year 2000, and none will mature that week. To achieve this, the maturity of the 21 December MRO will be lengthened, exceptionally, to three (from the normal two) weeks. And to avoid two MROs maturing on 12 January 2000, the operation on 30 December will also be lengthened to three weeks. Third, the amount of liquidity being allotted through LTROs in October, November and December has temporarily been increased from €15 billion to €25 billion.

Reserve requirements and standing facilities

9 Credit institutions in the euro area are required to hold minimum reserve balances with NCBs: the requirement is set at 2% of all deposits and debt issued with a maturity of less than two years (excluding repos and interbank liabilities), and has amounted to over €100 billion during 1999. The requirement must be met on average during each maintenance period, which runs from the 24th of one calendar month to the 23rd of the next. The ECB has, at least for a number of reserve maintenance periods, tended to 'front-load' credit institutions, by providing extra liquidity early in the period, in order to help keep market interest rates close to the official rate. For the system as a whole, actual daily reserves have normally fluctuated within a band of €85 billion and €120 billion, with peaks up to €126 billion and troughs down to €62 billion around the end of maintenance periods (Chart C).

RESERVES WITH THE EUROSYSTEM **CHART C**



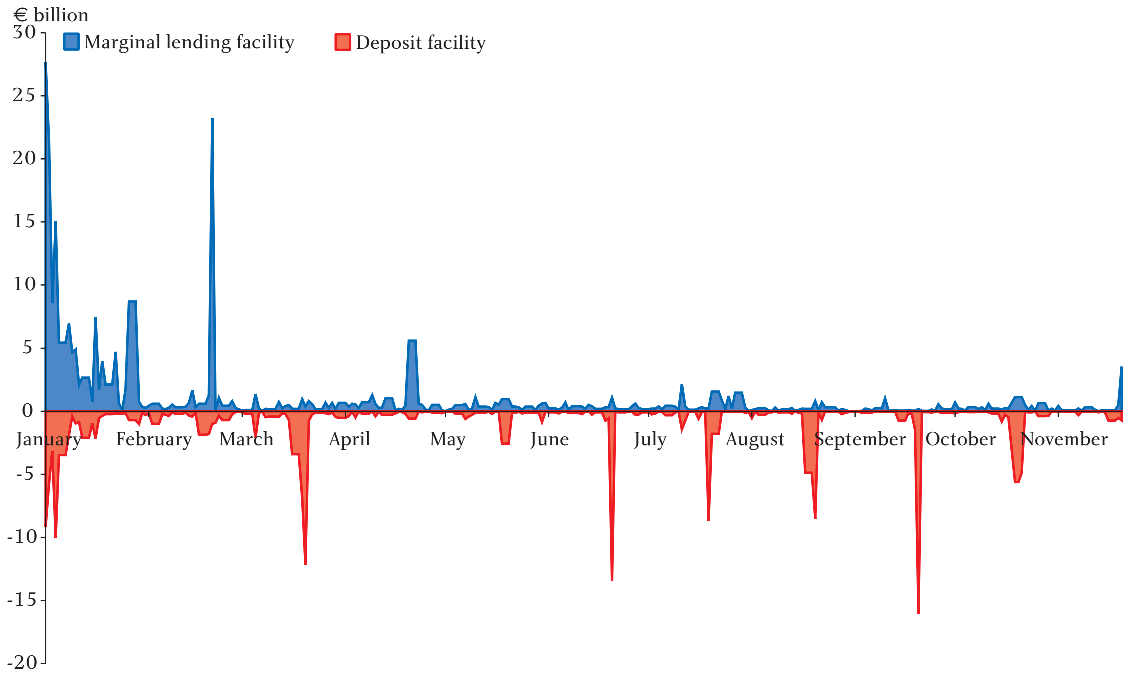
Source: ECB

10 These fluctuations in reserve balances clearly show that the averaging facility is used overall by the financial sector. However, there are indications that some (particularly smaller) institutions keep a steady balance over the reserve maintenance period to meet the required 2% deposit with their NCB, although some may use the liquidity intraday. Smaller credit institutions may find it easier to use existing borrowing facilities with larger banks. More generally, there has been little incentive to use the averaging facility proactively, since market rates have been kept very close to the ECB repo rate during most of 1999, which means that the cost difference between using own reserves at NCBs and interbank borrowing has been marginal.

11 The use of Eurosystem standing facilities has generally been low, because of the (low-cost) averaging mechanism provided by the reserve requirement system. The daily average of the liquidity absorbed through the deposit facility and liquidity provided through

the marginal lending facility up to November was only €0.8 billion and €1.0 billion respectively. Use was concentrated at the end of reserve maintenance periods (Chart D). In the period June-October, use of the deposit facility was much higher than that of the marginal lending facility, reflecting the fact that credit institutions generally had excess liquidity at the end of the relevant maintenance periods.

USE OF EUROSYSTEM STANDING FACILITIES **CHART D**



Source: ECB

12 *Excess reserves* Credit institutions have also managed to lower the amount of excess reserves (ie reserves that cannot count towards their reserve requirement for that maintenance period) during the course of the year. In the first few months, excess reserves still amounted to around €800 million on average (€1.1 billion in January-February), whilst later in the year the amount declined to some €500 million.

Development of the Eurosystem operational framework

13 The operational framework of the Eurosystem has now been in place for almost a year. Overall, the framework is judged to be functioning very satisfactorily. The ECB is examining all the elements of the framework as part of a planned review to assess its performance after one year. Some of the relevant issues are discussed below.

14 The ECB has so far used five instruments: MROs; LTROs; the two standing facilities; and a reserve requirement averaged over the maintenance period. These instruments represent only a subset of the range prepared for use by the Eurosystem in advance of EMU, as described in the *General Documentation* (Table 2).

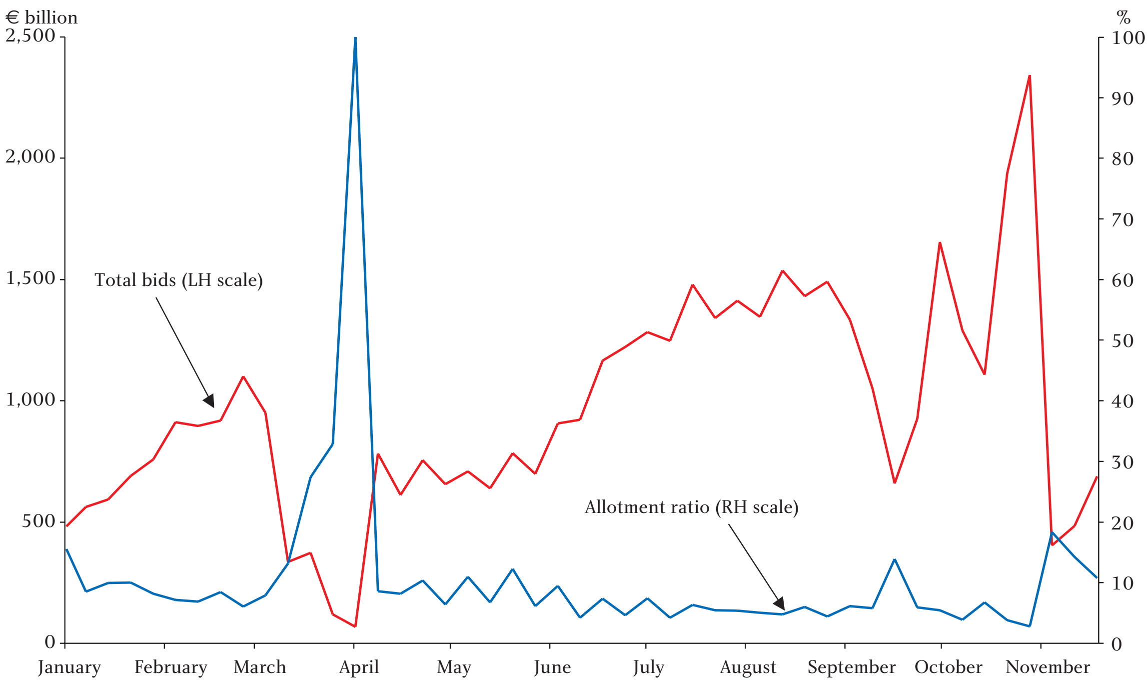
TABLE 2: EUROSYSTEM MONETARY POLICY OPERATIONS – AVAILABLE AND USED

	Types of transaction				
Monetary policy operations	**Provision of liquidity**	**Absorption of liquidity**	**Maturity**	**Frequency**	**Procedure**
OPEN MARKET OPERATIONS					
Main refinancing operations (MROs)	Reverse transactions	n/a	Two weeks	Weekly	Standard tenders Fixed or variable rate
Longer-term refinancing operations (LTROs)	Reverse transactions	n/a	Three months	Monthly	Standard tenders Variable rate
Fine-tuning operations	Reverse transactions Foreign exchange swaps	Reverse transactions Foreign exchange swaps Collection of fixed-term deposits	Non-standardised	Non-regular	Quick tenders Bilateral procedures
	Outright purchases	Outright sales	n/a	Non-regular	Bilateral procedures
Structural operations	Reverse transactions	Issuance of debt certificates	Standardised/ non-standardised	Regular and non-regular	Standard tenders
	Outright purchases	Outright sales	n/a	Non-regular	Bilateral procedures
STANDING FACILITIES					
Marginal lending facility	Reverse transactions	n/a	Overnight	Access at the discretion of counterparties	
Deposit facility	n/a	Deposits	Overnight	Access at the discretion of counterparties	

Note: operations used so far are shown in red
Source: ECB

15 The ECB has used only fixed-rate tenders in its MROs. It determines the precise amount of liquidity to be provided to the market after bids have been received from counterparties. They have been allotted only a small fraction of the amount bid (except on a few occasions). Counterparties in some countries in the Eurosystem are used to low allotment ratios, but others have had to adjust to bidding for more liquidity than they have actually needed (Chart E).

TOTAL BIDS AND ALLOTMENT RATIO **CHART E**



Source: ECB

16 Although the current system has positive benefits, including allowing the ECB flexibility in setting both the rate and the allotted volume of liquidity at any particular tender, the associated phenomenon of overbidding, and the volatility in the allotment ratio, are potential negative side-effects.

- Counterparties are not certain by how much they must overbid in order to obtain the liquidity they require from their NCB.
- Although, as a rule, counterparties only have to provide collateral to the value of liquidity actually allotted to them, rather than to cover the whole value of their bid, the uncertainty over the allotment ratio creates an additional risk. If the allotment ratio proved much higher than expected, counterparties could face problems obtaining the necessary collateral. This problem is obviously greater in countries where available collateral is relatively scarce in comparison with the rest of the Eurosystem. The scarcity could arise either because counterparties in those countries hold less of the relevant collateral or because, in those countries where active private repo markets exist, they face higher opportunity costs in using the collateral for Eurosystem operations.

17 These potential problems associated with overbidding, and consequential low and variable allotment ratios, have to date been contained by the ECB. Through its liquidity

management policy, the ECB has effectively kept overnight market rates close to the main refinancing rate. This has enabled individual credit institutions to cover any liquidity shortfall by borrowing in the market without incurring a large additional cost. In any event, the Eurosystem may if necessary make use of the considerable flexibility provided in the framework, under the *General Documentation*.

- *Fixed-rate MRO tenders with 100% allotment* Counterparties would receive the full amount bid, so the uncertainty that exists at present would be removed. However, the ECB would no longer have direct control over the volume of liquidity to be provided in these tenders. Currently, the ECB uses its exclusive knowledge of forthcoming liquidity flows to determine the amount of liquidity to be provided.
- *Variable-rate MRO tenders* Under variable-rate tenders, counterparties would have the option of bidding at a higher rate if they wanted greater certainty about receiving Eurosystem liquidity. However, a potential drawback of pure variable-rate tenders (where the ECB acts as a rate-taker) is that they could produce greater volatility in the weekly ECB refinancing rate, which could lead to volatile short-term market rates and could also cause confusion about the ECB's monetary policy stance. Although variable-rate tenders are not ruled out, the ECB has not considered it appropriate to use them this year, in order to ensure that its policy signals have been clear and unambiguous in this early stage of its operations. A move from fixed-rate to variable-rate tenders in the course of the year might have been interpreted as a monetary policy signal, rather than as a purely technical change.

18 It has been suggested that, if banks had access to the ECB liquidity forecast, they would have a clearer idea of how much liquidity the ECB intended to provide at a particular fixed-rate tender, and they would adjust their bids to a more realistic level. The ECB has, however, so far been reluctant to publish such forecasts.

19 The ECB has not made use so far of fine-tuning operations, available under the *General Documentation*. Fine-tuning operations (in the form of quick tenders or bilateral interventions) would be aimed at managing liquidity in the market and steering interest rates, particularly in order to smooth the effects of unexpected liquidity fluctuations. Fine-tuning operations would primarily be executed as reverse transactions, but could also take the form of outright transactions, foreign exchange swaps and the collection of fixed-term deposits (Table 2).

20 The Eurosystem framework has been designed in a way that should not necessitate frequent fine-tuning operations. The use of reserve requirements with averaging and the two standing facilities means that the Eurosystem does not have to intervene regularly to absorb liquidity shocks. Instead, credit institutions can vary the balance on their reserve account at the local NCB, or access the standing facilities. The ECB has also not felt it necessary to use fine-tuning operations when spikes have occurred in the overnight rate at the end of maintenance periods: the spikes have not been interpreted by the market as indications of a permanent change in rates. The use of standing facilities at the end of the reserve maintenance periods, although sizeable at times, has been small enough so as not to place too great a burden on commercial banks (although the standing facility rates are unfavourable in comparison with those that would be used for fine-tuning). The ECB wishes

to rely as far as possible on market participants' behaviour to smooth interest rate fluctuations.

21 The Eurosystem has also had no need to use any structural operations in 1999 to adjust its position vis-à-vis the banking system. Structural operations could take the form of reverse transactions, the issuance of Eurosystem debt certificates, or outright sales or purchases of eligible paper (Table 2). Credit institutions started EMU with a structural deficit which, together with the application of 2% reserve requirements, has provided a sufficient market shortage to give the Eurosystem, through its role as sole system liquidity provider, adequate control over short-term interest rates.

22 One of the major factors creating liquidity flows into and out of the banking system is changes in government balances held at the NCBs. Where these flows are unpredictable, it can make liquidity management more difficult. A number of governments made changes to their cash management arrangements in advance of the launch of the euro, and some have done so subsequently. This has helped to reduce the scale of unpredictable flows, but there may still be scope for further improvement. The impact of such flows can typically be absorbed through the use of standing facilities and averaging, but they can nevertheless be disruptive if they occur in the last few days of the maintenance period, when banks are working to meet their required reserves level for the period.

B MONEY MARKET

23 The euro money market – which is located predominantly in the euro area and in London – has, almost from the outset, shown a marked degree of integration for unsecured transactions, but this has yet to be matched in secured money market activity. Although both segments of the money market have grown over the year, settlement system-related and other obstacles still constitute a significant barrier to early further integration for repo transactions.

Unsecured money market

24 The introduction of the single monetary policy and the establishment of TARGET have had a considerable impact on the development of the unsecured money market. Before EMU, NCBs' open market operations were geared towards meeting the liquidity needs of their own domestic markets. The ECB's goal is instead to satisfy the liquidity requirements of the euro area as a whole, not that of each participating country. This development has led to a large number of banks borrowing or lending cross-border in order to manage their liquidity.

25 The evolution of unsecured money market flows has also been influenced by the centralisation of treasury operations by many international banks, and the withdrawal from central bank operations of a number of smaller banks in the euro area, partly because of the costs associated with becoming a Eurosystem counterparty.

26 There has been greater 'tiering' in the interbank market since the launch of the euro. Major international banks are able to undertake large deals, including on a cross-border basis, at very fine bid-offer spreads, while smaller banks of lesser perceived credit standing,

which operate mainly in their domestic markets, are required to deal at bid-offer spreads up to ten basis points wider.

27 The absence of opportunities to arbitrage between money market rates in different centres is evidence of the success of TARGET (the system used for over two-thirds (by value) of large value euro payments (see Chapter 3)). Growth has been most marked at short-term maturities, especially overnight. Around three-quarters of overnight money market business is estimated to be conducted on an unsecured basis.

28 There has also been a sharp increase in the volume of EONIA swaps since early 1999. EONIA swaps are used primarily for position-taking, for arbitrage and for hedging against volatility in the overnight rate. They constitute the principal hedging instrument available to the market for maturities up to three months, with exchange-traded futures a viable alternative for longer maturities. Bid-offer spreads at the shorter maturities are usually around 1-2 basis points. The standard deal size is €500 million for deals less than three months, and €100 million at one year.

Secured money market

29 Lower capital requirements for financial institutions on secured, relative to unsecured, money market transactions, have contributed to expansion in the secured euro money market. In part reflecting an increase in the number of active institutions, there have been some signs that the secured money market is becoming rather more closely integrated, but the extent of integration remains significantly less than for the unsecured money market.

REPO DEFINITIONS

Repo - a transaction in which one party sells securities to another, and at the same time and as part of the same transaction, commits to repurchase equivalent securities on a specified future date, or at call, at a specified price.

- *General Collateral* (GC) *repos* are cash-driven, with the cash provider not specifying the exact securities he wishes to receive.
- *'Specific' repos* are driven by the cash provider's need for an exact security, for example to cover a short position.
- *'Special' repos* are specific repos where the security in question is in high demand and hence attracts a premium in the market, pushing down the rate which the cash provider receives below GC levels.

Stock loan - a transaction similar in nature to a specific repo, except that the security in demand is usually lent against a non-specific pool of collateral rather than against cash, and it is fee rather than interest-rate based.

Buy/sellback - this transaction is similar in nature to a repo, but there are a number of technical differences.

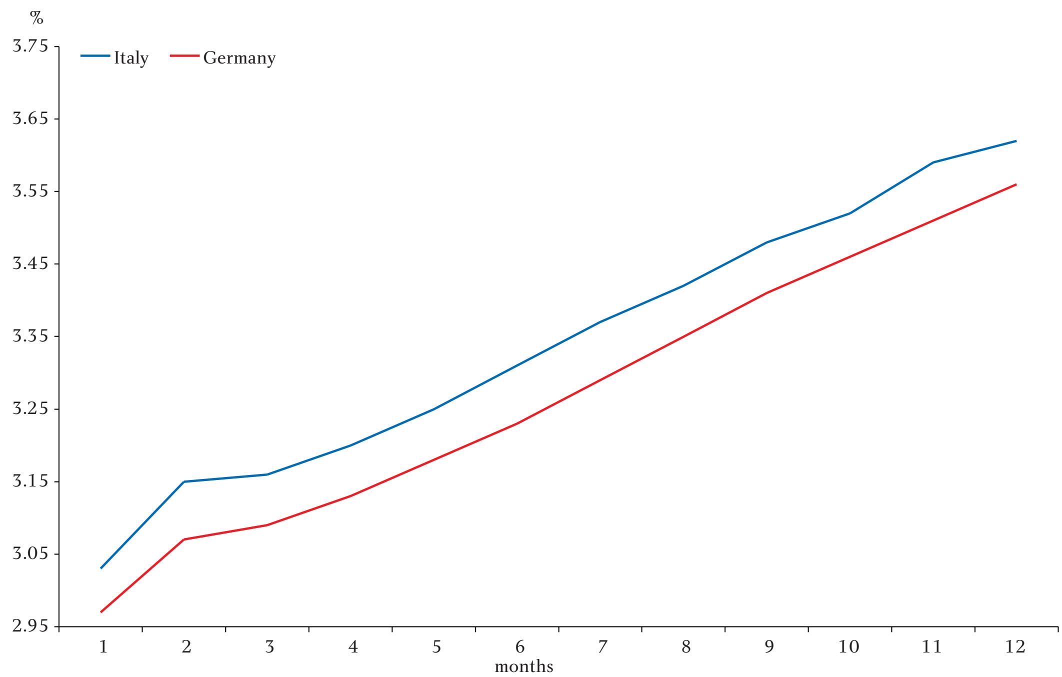
'Repo' is used generically in this section to cover all of the above types of transaction.

30 Many institutions, active mainly in domestic markets before the launch of the euro, have entered the cross-border repo market. These include a number of cash-rich banks and stock lenders previously engaged almost exclusively in their domestic markets, as well as international money market funds, especially from the US. Bid-offer spreads in the GC market have narrowed, to around 1-2 basis points for maturities under three months and to 5 basis points for longer maturities, from 5 and 8 basis points respectively early in the year. The standard size of GC trades has increased to €50 million, as against DM50 million (equivalent to around €26 million at the conversion rate) in the Bund GC market before the launch of the euro. The majority of 'overnight' trades in the repo market involve settlement of the final leg occurring either two or three business days after the date of the trade ('tomorrow next' or 'spot next'). Maturities out to one week have dominated trading so far. GC repos and specials are mainly in the form of government bonds, though other bonds like Jumbo Pfandbriefe are increasingly used, reflecting significant growth in underlying issuance relative to issuance by euro-area governments.

31 GC repo rates differ significantly for collateral in the form of bonds issued by individual euro-area governments. Chart F shows the spread between German and Italian GC repo as at 23 November. The premium for German collateral over Italian has this year ranged from around 5 to over 10 basis points for maturities up to one year, depending on market conditions. Most cash providers in the GC market have clear preferences regarding their collateral requirements. In practice, most GC collateral comprises Belgian and Italian Government bonds, because they are the most widely available liquid collateral and they are thus much less likely to be of value to the cash taker by going special.

ITALIAN AND GERMAN GC RATES **CHART F**

at 23 November



Source: Garban Intercapital Plc

32 Specials' trading is dominated by Bund collateral, reflecting two factors. First, Bunds are the benchmark, especially at ten years, and are therefore used as a guide for the pricing of corporate bond issues. Second, the ten-year Bund futures contract is used as the main

hedging instrument across the euro-denominated government bond market. The volume of underlying trades which the Bund contract has to support is much larger than before the launch of the euro, so increasing demand for Bunds eligible for delivery into the contract. Bunds are therefore more susceptible to going 'special' around futures delivery dates.

33 The development and use of electronic trading and netting systems (see Chapter 3) is likely to boost turnover and liquidity in both the GC and specials' markets. Electronic trading systems are potentially more efficient than voice-based broking systems. The introduction of central counterparty netting services, such as those offered by RepoClear and Clearnet, should encourage the growth of the repo market significantly by reducing balance-sheet usage (to the extent allowed by accounting standards) as well as the fraction of counterparty limits which repos take up, and by introducing more sophisticated and comprehensive risk management techniques. The use of a central counterparty will also provide for anonymous repo trading on automated trading systems, both on a pre and post-trade basis. Volumes and liquidity should benefit from the introduction of netting services: the introduction in 1995 of a repo netting service in the US by the Government Securities Clearing Corporation (GSCC) is estimated to have contributed to a subsequent twenty-fold increase in its US Treasury repo business.

34 Two structural developments have been of particular relevance for UK-based participants in the euro money market. First, the Bank of England has expanded the range of securities acceptable in its daily open market operations, to include a great deal of collateral issued by EEA governments and central banks, as well as by a range of supranational institutions. As a result, UK money market counterparties can receive sterling in the Bank's money market operations against euro collateral. Second, some types of euro securities now qualify for the FSA's sterling stock liquidity regime, which requires certain UK banks to maintain a minimum ratio of high-quality liquid assets relative to their sterling liabilities. Both of these developments have increased the incentive for UK institutions to hold euro securities, indirectly enhancing their ability to participate in the euro repo market.

35 The emergence of a fully integrated, cross-border repo market would result in markedly higher volumes and reduce the spreads between different types of collateral. However, the following factors are holding back the development of a fully efficient cross-border repo market.

- *Settlement systems* Differences between the systems where collateral is held, including in their settlement cycles, can make it difficult to transfer the ownership of collateral sufficiently quickly cross-border. The less efficient the links between systems, the less attractive it is to use securities held within them as collateral for repos, particularly in the case of short-term (same-day and overnight) repos.
- *Local demand* Some market participants are restricted by tax and other considerations in the foreign collateral they may hold, and/or retain a preference for domestic collateral.
- *Legal constraints* The absence of standard documentation for euro repos can increase administrative costs and the risk of mismatches in back-to-back transactions. In addition, there are concerns in certain situations about the legal

effectiveness of netting provisions (which determine the extent to which counterparties can offset their mutual obligations), including the transfer of title and finality of settlement. These concerns arise because of the number of different legal systems to which repo market participants are subject.

EXCHANGE-TRADED EURO DERIVATIVES

Since the launch of the euro, there has been intense competition between LIFFE, Eurex and MATIF/MONEP (now incorporated as part of ParisBourse). Traders in London are making a significant contribution to business not only on LIFFE but also, remotely from London, on the continental exchanges.

- *Short-term interest rate contracts (STIRs)* EURIBOR futures contracts on LIFFE are by far the most actively traded short-term euro interest rate futures contracts. LIFFE's market share is over 90% of the turnover on the three exchanges combined (as at end-October).
- *Bond futures contracts* Eurex's euro Bund futures contract currently accounts for 96% of turnover in the major 10-year euro bond futures contracts. Similarly, the euro Bobl (5 year) and euro Schatz (2 year) contracts on Eurex also dominate business in those maturities. Swaps traders currently prefer the highly liquid 10-year Bund contract to hedge their positions to LIFFE's new 5 and 10-year EURIBORFinancedBond (LIFFEEFB) contract, which settles against EURIBOR-referenced swap rates. A significant proportion of Bund business on Eurex is traded remotely from London.
- *Equity index contracts* The launch of the euro has also led to an expansion in equity index contracts. For example, on 25 May, LIFFE launched five pan-European index contracts (futures and options on the FTSE Eurobloc 100, FTSE Eurotop 300, FTSE Eurotop 300 excluding the UK, MSCI Euro, and MSCI Pan-Euro Indices) and, on 29 June, contracts on FTSE's new EuroStars Index. In addition, ParisBourse launched futures and options contracts based on three Dow Jones STOXX pan-European sector indices (banking, energy and telecommunications). Eurex lists futures and options contracts based on two equity indices: the Dow Jones STOXX 50 (blue-chip European companies), and the Dow Jones euro STOXX 50 (blue-chip euro-area companies).

Whilst comparison of activity on exchanges is normally undertaken on the basis of volume data, value data are increasingly seen as a better measure of financial activity on exchanges. The BIS has recently begun to analyse activity in its *Quarterly Review* using notional value (as well as the number of contacts traded).

The differences are significant. On the volume-based measure, Eurex is the largest derivatives exchange in Europe, followed by ParisBourse and LIFFE, in that order. But LIFFE has the highest notional daily value of interest rate (STIR and bond) and equity index derivatives contracts (€319 billion on average between June and October inclusive), followed by Eurex (€136 billion) and ParisBourse (€18 billion). These figures include both futures and options data (except for individual equity options). The two data sets were compiled separately, but subsequently aggregated to aid comparison and because the underlying patterns are very similar.

C FOREIGN EXCHANGE MARKET

36 The exchange rate of the euro has depreciated against the dollar, yen and sterling, and on an effective basis, during 1999 (Chart G).

THE EURO EXCHANGE RATE — CHART G

Source: Bank of England

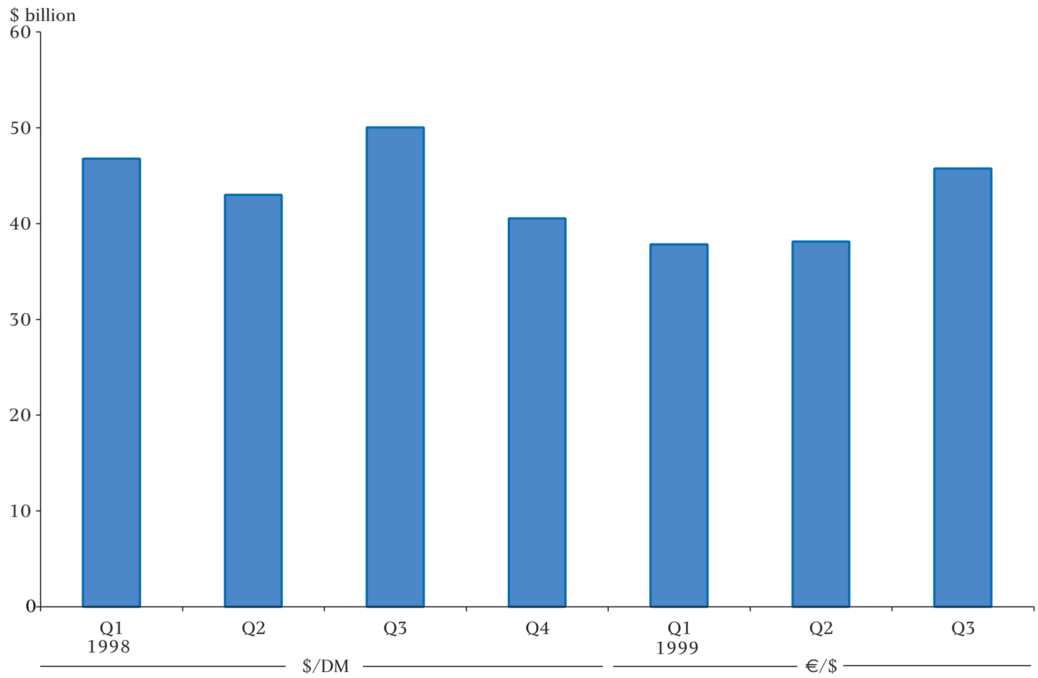
37 The foreign exchange market very quickly adapted technically to the launch of the euro. By mid-year, one major international bank estimated that barely 5% of its euro customer business in foreign exchange was still denominated in previous EMU-11 currencies. Building on the themes originally discussed in the June *Practical Issues*, this section starts by identifying trends in trading volume, liquidity and volatility in the euro foreign exchange market since the beginning of the year, and then analyses some of the structural changes responsible.

Trading volumes, liquidity and volatility

38 Turnover between the euro and other major currencies is lower than it was in the EMU-11 currencies before the end of last year. Although consistent data are not yet available, the decline in EU foreign exchange markets may have been around 15-30%. In the London market, there seems to have been a 5-10% decline in overall turnover in 1999 (though sterling volume has risen). EBS data (Chart H) show that in 1998 the average daily volume of DM against the dollar was just over $45 billion. This compares with daily turnover in €/$ of $41 billion in the first nine months of 1999, a fall of 10%, although this is clearly an understatement of the overall decline because of the increasing share of the market being taken by systems like EBS. In €/¥ the fall was more marked. EBS daily turnover fell from over $7 billion in DM/¥ last year to $4 billion in the first nine months of 1999.

39 Spreads in the major euro currency pairs in international markets have narrowed since the start of the year, and the terms for $20 million in €/$ (2-3 basis points) are roughly the same in percentage terms as for a similar size deal in $/DM last year. Likewise, spreads for standard size deals in euro against sterling and the other non-participating currencies are now similar to their DM equivalents. But spreads in €/¥ have continued to be wider and more variable than was the case in DM/¥.

AVERAGE DAILY €/$ SPOT FOREIGN EXCHANGE VOLUME **CHART H**



Source: EBS

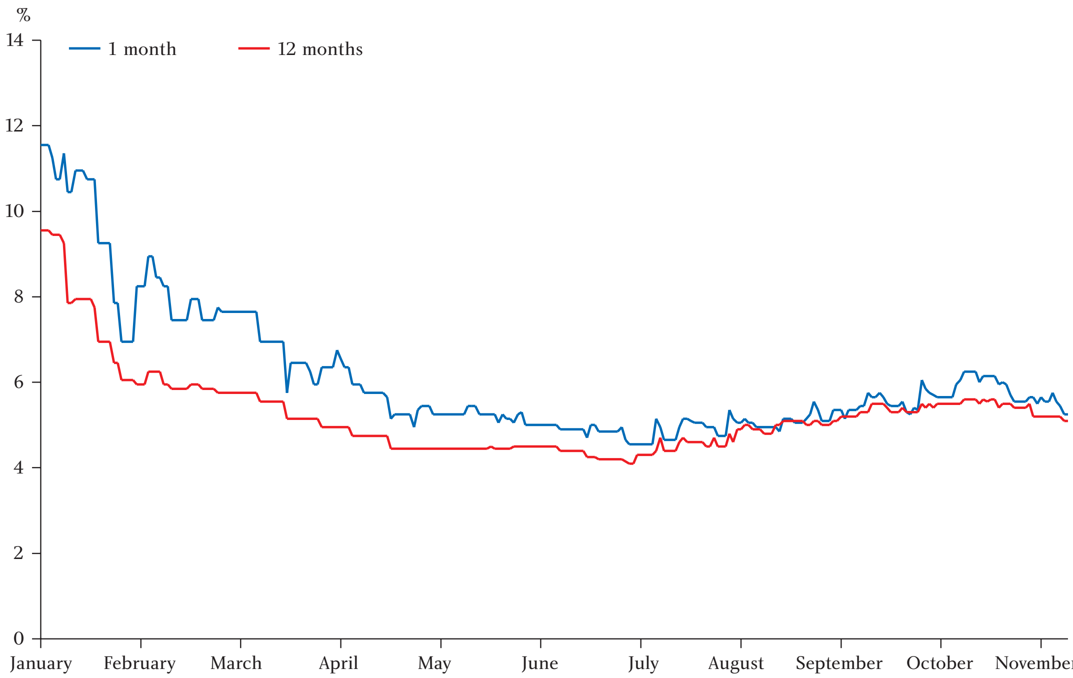
40 The average size of deals is smaller now than before the launch of the euro. This appears to reflect the increased use of electronic broking systems – where larger deals tend to be broken down into smaller amounts - rather than the advent of the euro. As elsewhere in the foreign exchange market, liquidity is now deepest on the electronic systems.

41 Turnover has also been lower in the foreign exchange swaps market (predominantly €/$). But liquidity is generally considered to be better than in the EMU-11 currencies, average ticket sizes are larger, and there is a healthy overnight market. Lower turnover mirrors developments in the spot market, but also reflects reduced demand for foreign currency hedging by the corporate sector following the disappearance of the previous EMU-11 currencies.

42 Exchange-traded currency futures and options involving the euro remain relatively underdeveloped, as a result of reduced appetite for risk and hedging requirements, as well as lower volatility. Euro-denominated contracts are traded on the Chicago IMM, and to a much smaller extent on SIMEX and GLOBEX. Even on the Chicago exchange, liquidity is said to be variable and turnover low.

43 Implied and historical volatilities for €/$ have mostly traded at levels similar to those for $/DM in 1998 prior to the Asian crisis and, following a predictable period of uncertainty around the turn of the year, volatility levels in the euro have eased (Chart I).

IMPLIED VOLATILITY FOR €/$ **CHART I**



Source: Chase foreign exchange options page on Reuters

Structural changes in the market

44 What are the reasons for these trends? There appear to be four main structural changes in the market: the replacement of the EMU-11 currencies by the single currency; the move of spot trading onto electronic broking systems; changed attitudes to risk; and the consolidation of trading operations.

45 *Replacement of the EMU-11 currencies* A significant part of the contraction in foreign exchange turnover reflects the mechanical effect of the replacement of the EMU-11 currencies by the euro. Table 3, drawn from the most recent (1998) BIS survey, shows the potential size of this change. Substantial falls in turnover were to be expected in several countries, notably Italy, Netherlands, Portugal and Finland. The Table probably underestimates the importance of EMU-11 crosses: many cross trades were executed via the dollar, and this would not have been reflected in these BIS figures.

46 *The move of spot trading onto electronic broking systems* This shift is taking place on two levels: first, the increasing share of broked business being taken by the electronic systems; and second, the switch of business previously transacted via direct dealing relationships. The BIS survey put the share of electronic systems in the broked market in London at 15% in 1995, and about 40% in April 1998. Market estimates point to a further sharp rise this year, to about 70%. Some of the features of electronic systems (in-built credit limits, audit trails, transparency) have attracted business from the direct market, and they are now seen to represent the pricing standard in most spot markets. This has been accompanied by a

decline in the traditional market-making function and in the readiness of banks to make reciprocal prices.

TABLE 3: FOREIGN EXCHANGE TURNOVER AND CROSS TRADES IN EMU-11 CURRENCIES IN APRIL 1998

	Total turnover, April 1998 ($ billion)	Of which: cross trades involving EMU-11 currencies and ECU ($ billion)	%
Belgium	26.5	3.6	13.5
Germany	94.3	4.7	5.0
Spain	19.3	2.0	10.5
France	71.9	8.5	11.8
Ireland	10.1	0.8	7.6
Italy	28.2	4.6	16.3
Luxembourg	22.2	2.8	12.5
Netherlands	41.0	6.9	16.8
Austria	10.5	1.2	11.3
Portugal	4.4	0.6	14.0
Finland	4.2	0.6	14.6
Total euro area	332.6	36.2	10.9
Denmark	27.3	1.0	3.5
Greece	7.2	0.2	2.5
Sweden	15.4	0.4	2.6
UK	637.3	17.7	2.8

Note: currency breakdown insufficient for a fully accurate analysis of these cross trades

Source: estimates based on Tables E4, E6, E7 of BIS Survey

47 *Changed attitudes to risk* Last year's emerging markets' crisis has contributed to a significant decline in active position-taking in both cash and derivatives markets. Banks have become more risk-averse overall, reducing proprietary foreign exchange activity and tightening their credit risk management, with many having cut their limits for hedge funds. At the same time, hedge funds' own appetite for risk has decreased following the losses sustained last year. Their positions now tend to be smaller and more short-term in nature. Corporate activity has also diminished.

48 *Consolidation of trading operations* Individual banks have had a strong incentive to concentrate their euro dealing and treasury activities in a single centre. Improved communications with customers has meant that it is no longer essential to have trading rooms around the euro area. Typically, banks headquartered in the euro area have repatriated foreign exchange dealing to their home base, while US and other international banks have concentrated their euro business in London.

49 For many small or medium-sized euro-area banks, the benefits of concentrating their euro dealing and treasury activities in a single centre are not large; and the switch to the euro has deprived them of the niche business previously available to them in their national currencies. These factors have eroded their competitive position and, when coupled with the greater emphasis on credit risk, have led to a diversion of foreign exchange business to bigger players. As a result, smaller banks have been pulling out of the interbank market, and concentrating on servicing the needs of local customers.

50 These trends have been reinforced by the behaviour of international corporates, which have also been centralising their euro treasury operations: accordingly, they are now looking to deal in wholesale amounts with banks offering a full range of financial services, in either the larger euro-area financial centres or London.

51 Against this background, it is clear that the potential economies of scale in treasury and foreign exchange operations are a significant influence on merger activity in the European banking sector. Merger activity is reducing the number of market participants, while rationalisation is leading international banks to consolidate foreign exchange trading operations in the centres where they have most comparative advantage. Liquidity is more concentrated. The bigger trading houses have become more important in their contribution to liquidity and volume, as customers have directed their attention to those banks able to supply quick and accurate pricing, and a wide range of financial services.

52 In summary, the euro foreign exchange market has become firmly established in 1999. But the introduction of the euro has coincided with other fundamental factors, which have led to lower market turnover, fewer participants, and a declining role for market makers. The creation of the euro has contributed to these developments, through its direct impact on cross-currency trading, and also indirectly through its influence on the rationalisation of the European banking industry.

D DEBT CAPITAL MARKETS

Government issuance in the euro area

53 Total euro-area government issuance (excluding Treasury bills and some quasi-government and retail-only issues) rose slightly from the EMU-11 currency equivalent of €404 billion in the first nine months of 1998, to €423 billion in the same period this year, according to data supplied by Barclays Capital. This increase is a function of front-loading of issuance during 1999 associated with the launch of the euro, Y2K effects and particularities of the redemption schedule of some governments. The data also show that the mean issue size rose significantly between the first nine months of 1998 and 1999; at the same time, mean maturities fell, largely as a result of a drop in 11-30 year issuance. The largest single sovereign issuer continues to be Italy. The foreign currency (ie non-euro and non-previous EMU-11 currency) portion of this total euro-area government issuance has fallen from approximately 2% to 1% over the same period. The syndicated (as opposed to auctioned) portion of euro-area government bond issuance also remains small, at less than 5% of the total. However, within this total, syndicated issuance denominated in euro increased during the same period, as some small country issuers have made more extensive

use of underwriting facilities to help diversify their investor base away from their home market.

54 The regime shift implied by the start of EMU has had a number of implications for the sovereign bond market in the euro area. The disappearance of national currency-related risk premia has brought down funding costs for some borrowers. At the same time, by removing the exchange rate risk of diversification for investors within the euro area, EMU has ensured that government issuers can no longer rely on a 'captive' national market. Instead, they have to compete to attract an increasingly homogeneous pan-European investor base. To do this, some government issuers in smaller euro-area countries have been increasing issue sizes to improve liquidity and have introduced exchange programmes to focus liquidity on particular issues. The possibility of governments in smaller euro-area countries in future co-ordinating their issues or even making joint issues has been mooted, but these ideas have so far met with stiff opposition from many quarters on economic, political and legal grounds.

Trends in non-government euro-denominated bond issuance

55 Underwritten non-government euro-denominated bond issuance in all markets during 1999 Q3 totalled €185 billion, a 29% rise from 1998 Q3 according to data from Capital DATA Bondware (CDB). This brings the total for such issuance in the first nine months of 1999 to €638 billion, a 42% rise over the level of EMU-11 currency issuance in the same period of 1998.

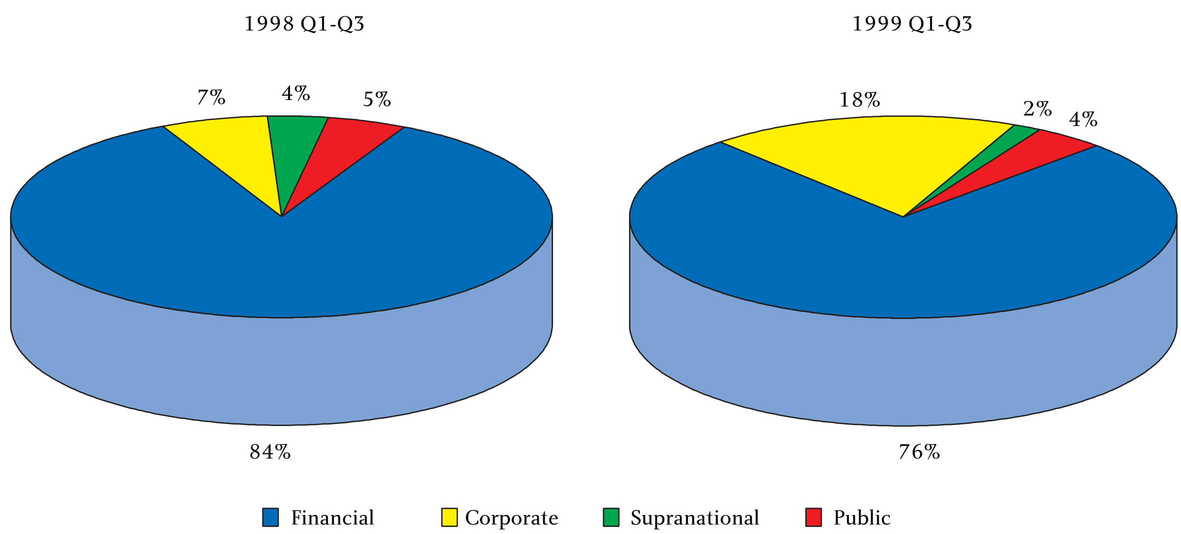
56 The introduction of the euro has given an important boost to the integration of euro-area capital markets and has accentuated further the trend towards securitisation and the disintermediation of the banking sector. The corporate bond market, in particular, has seen spectacular growth. Euro-denominated corporate issuance by both euro and non-euro area companies (including private utilities) rose from only €30 billion in the first nine months of 1998 to €117 billion in the same period of 1999. More generally, the introduction of the euro has helped increase the appetite of investors for lower-rated debt and this has been reflected in the credit breakdown of new issuance. The central themes of disintermediation, higher corporate bond issuance and the move down the credit curve are discussed in greater detail later in this section. The next few paragraphs analyse more fully other broad trends in the non-sovereign euro-denominated bond market.

57 It should be noted that the rise in issuance in the first nine months of 1999 was not exclusive to euro-denominated debt: issuance in other currencies also rose. Indeed, there have been a number of non euro-specific reasons suggested for such an increase: these include the return to the market by issuers which held back issuance during the last four months of 1998 because of the illiquid conditions that followed the Russian default and LTCM débâcle; they also include opportunistic issuance to take advantage of the low interest rates prevailing at the start of the year, and the bringing forward of planned issuance within 1999 to avoid a possible reduction in liquidity in the market in the run up to year 2000.

Euro-denominated bond issuance by issuer type

58 The breakdown of non-government issuance by type of issuer shows that the financial sector continues to dominate in 1999, although its share has fallen from 84% in the first nine months of 1998 to 76% in the same period of 1999 (Chart J). This lower share was largely accounted for by a fall in traditional Pfandbrief issuance. Within the financial sector there was, by contrast, significant growth in Jumbo Pfandbrief issuance, reflecting the increasing popularity of this internationally oriented market. Part of its popularity comes from the unusually large size of some of the Jumbo issues (for example the Allgemeine Hypo issue of €5 billion in August). Other countries are considering the creation of bond markets similar to German Pfandbrief, and Spanish banks have already launched the first 'cedulas hipotecarias'. Of greatest significance in the period under review, however, has undoubtedly been the rise from 7% to 18% in the corporate bond market's share of total non-government euro-denominated issuance.

NON-GOVERNMENT EURO-DENOMINATED ISSUANCE BY ISSUER TYPE: FIRST THREE-QUARTERS OF 1998 AND 1999 **CHART J**



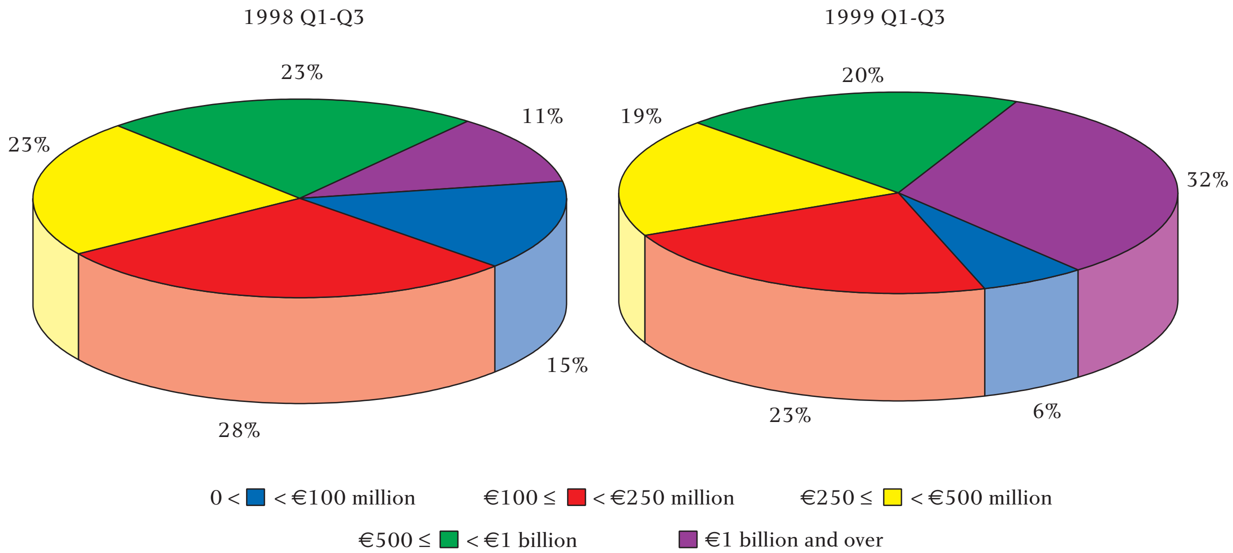
Source: CDB

New issue size in the euro-denominated bond market

59 Investors have become increasingly attracted to large liquid issues, particularly following the bond market difficulties of 1998 and, since the introduction of the euro, borrowers have shown an increased willingness to meet this demand. As a result, the average size of non-government issues has increased from €142 million in the EMU-11 currency-denominated bond markets in the first nine months of 1998, to €227 million in the euro-denominated bond market in the equivalent period of 1999. Indeed, the focus on issuing larger bonds has been such that the number of new non-government issues of €1 billion or more rose from 43 to 141 in the period under review. Issues of this size accounted for 32% of the market in the first nine months of 1999, compared with 11% a year

earlier. By contrast, the number of bonds issued with a value of less than €100 million has fallen sharply (Chart K).

NON-GOVERNMENT EURO-DENOMINATED BOND ISSUANCE BY ISSUE SIZE: FIRST THREE-QUARTERS OF 1998 AND 1999 **CHART K**



Source: CDB

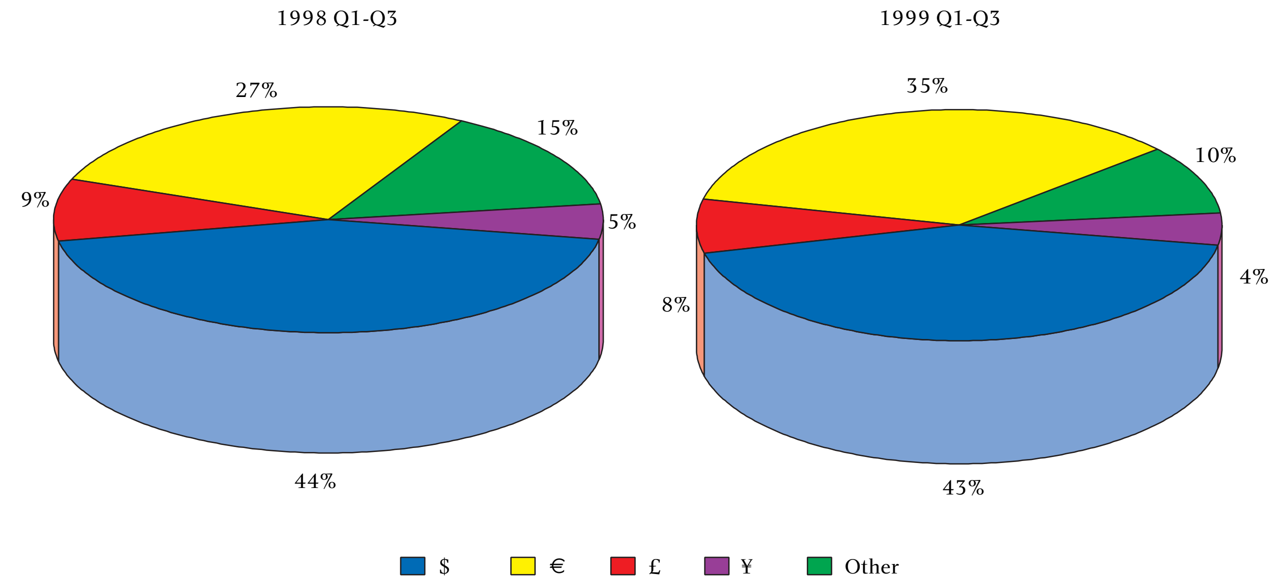
Currency competition in non-domestic currency bond issuance

60 One way of comparing the relative attractiveness of the euro and the dollar to borrowers is to analyse international issuance of bonds denominated in a currency other than the issuer's own domestic currency. The dollar has remained the most popular currency for non-domestic currency issuance by non-governments, decreasing as a proportion of the total only from 44% to 43% during the period under review. However euro-denominated issuance has represented a higher share of such issuance in the first nine months of 1999 (35%) than that accounted for by EMU-11 currency issues in the same period of 1998 (27%) (see Chart L). (These figures exclude issuance by euro-area borrowers in euro in 1999 and in EMU-11 currencies in 1998.) The increase in the share of the euro has been at the expense largely of currencies other than the dollar.

Bond benchmarks

61 There continues to be intense competition for sovereign benchmark status in the euro bond market. Two key features of an 'ideal' benchmark are that it should be of very high credit quality and should not be subject to a large number of country, sector or issue-specific risks. Non-sovereign bonds are in most cases not seen as viable contenders for benchmark status because their value is too easily affected by factors other than interest rate movements across the euro area. The same considerations favour the sovereign bonds of large economies that are highly correlated with the euro-area economy as a whole. These factors have helped increase the relative attractiveness of German and French sovereign bonds as benchmarks.

CURRENCY COMPETITION IN NON-DOMESTIC CURRENCY BOND ISSUANCE BY NON-GOVERNMENTS: FIRST THREE-QUARTERS OF 1998 AND 1999 — CHART L



Source: CDB

62 Another crucial feature of a benchmark is that it should be liquid and widely traded. There are four key aspects to this.

- Large tranches of bonds need to exist in the key sectors of the yield curve; the benchmark issuer should have a commitment to supply the market regularly with new issues in a systematic and transparent way.
- It must be possible to transact significant volumes at prices close to the prevailing market price in a well-developed secondary market.
- There should be a deep and liquid futures market. Since the bulk of fixed interest trading occurs in the futures market, this is seen as the most crucial liquidity factor by many market firms.
- There should be a wide and geographically-diversified investor base.

63 Size factors alone dictate that, in the view of most market participants, there are only three serious contenders for sovereign euro-area benchmark status: Germany, France and Italy. At the ten-year part of the spectrum, German issues are typically the largest in size, while in the middle of the curve French issues tend to be bigger and at the shorter maturities Italy has provided some of the largest tranches of bonds available in the euro area. In terms of trading volumes, German issues constitute 23 of the top 25 government bonds denominated in euro, according to Cedelbank figures for August. Furthermore, in the futures market, by far the largest levels of open interest and trading volumes are concentrated in the Eurex two, five and ten-year contracts, which include only German Government issues in the deliverable basket. The market dominance of Eurex contracts has created a natural demand for German issues from investors looking to trade and hedge futures market positions. This in turn has boosted the liquidity of the underlying securities

and greatly enhanced the claim of German sovereign bonds for benchmark status. Indeed, by virtue of the liquidity of the Eurex futures alone, many international investors see German sovereign bonds as the prime contender across the maturity spectrum – despite the fact that other measures of secondary market liquidity can appear to favour other issuers at the shorter end of the yield curve.

TABLE 4: BOND YIELDS RELATIVE TO SWAPS AND CURRENT BENCHMARK TRANCHE SIZES FOR VARIOUS EUROPEAN COUNTRIES

	Two years		Five years		Ten years	
	Yield versus EURIBOR	Tranche size € billion	Yield versus EURIBOR	Tranche size € billion	Yield versus EURIBOR	Tranche size € billion
Netherlands	-10/-14	6.1	-15/-19	7.5	-25/-29	12.1
Germany	-14/-20	5.0	-27/-33	5.0	-41/-47	20.0
France	-12/-24	13.2	-19/-33	16.6	-32/-33	13.7
Italy	-2/+1	9.4	-9/+2	12.4	-7/-20	13.4

Note: Spreads are expressed in basis points on a quarterly basis. The spreads are averages over August and September for bonds around each maturity bucket. The levels quoted are indicative only.

Source: Bloomberg

64 Table 4 compares the prices of a few of the leading contenders for benchmark status in the euro-area bond market across the two, five and ten-year sectors. Yields are expressed using the swap curve as a 'metric' – ie the yield of each bond is expressed as the equivalent yield that the issue generates swapped back into a three-month floating rate. By doing this, it is possible to allow for the effects of the differing coupons and maturity dates of issues across countries within the same broad sector, giving a more accurate comparison of relative value. The pricing largely corroborates market perceptions, since German issues consistently feature as the most highly valued across all the maturity spectrum. The dominance of the Eurex bond futures contracts, along with the size, status, credit standing, investor base and secondary market liquidity of the German sovereign bond market, seem to make German issues a clear favourite among international investors as a euro benchmark. However, the dominance of German issues is much more pronounced at the longer end of the yield curve. For shorter maturities, French issues provide more competition, with their closer relative pricing to German issues in the two and five-year sectors providing a good indication of this. Not surprisingly, national preferences for the various candidates remain at variance.

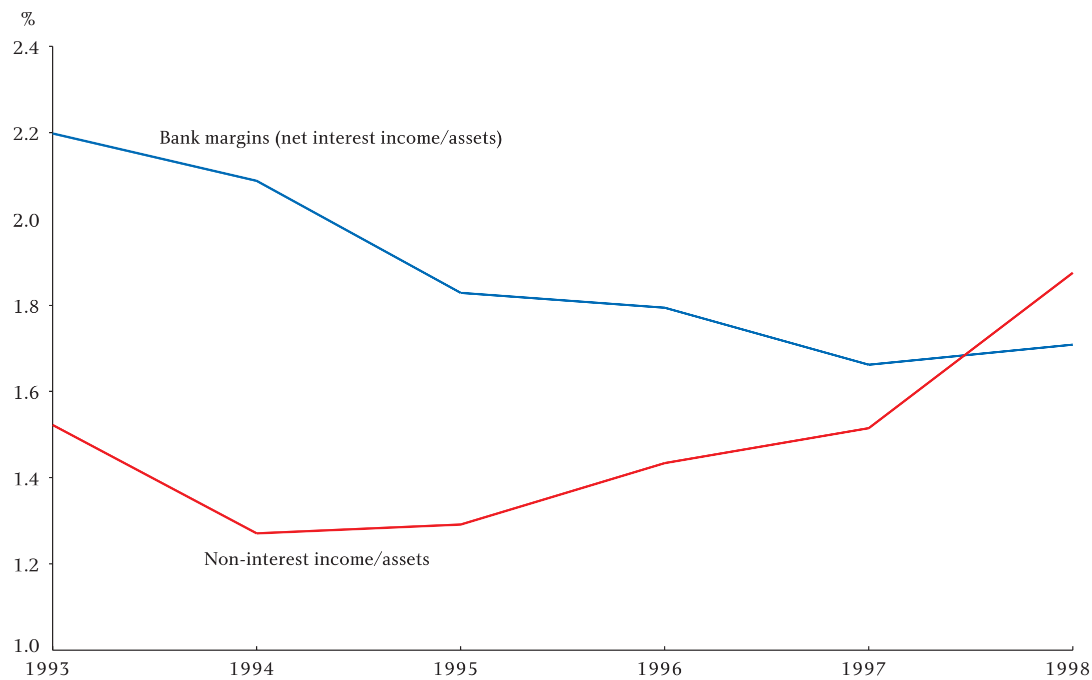
Disintermediation in the euro area

65 For some time in the euro area there has been a marked increase in disintermediation of the banking system, especially on the liability side of the balance-sheet. In particular, non-bank financial intermediaries – such as mutual funds and life assurance companies – have taken a growing share of retail savings, as savers have sought more sophisticated products, with higher yields and in some cases tax advantages. The start of EMU has further boosted this disintermediation trend in the savings market, not least because in some countries it has been associated with significantly lower short-term interest rates. At the same time, by improving the integration and liquidity of euro-area capital markets, EMU has

encouraged rapid growth in non-financial corporate sector debt issuance – leading to increased disintermediation of the asset side of banks' balance-sheets as well. Bank lending to non-financial companies has, according to ECB figures, continued to grow as a percentage of GDP (in the year to end-June 1999) and new bank credit to this sector still exceeds corporate bond issuance in absolute terms. However, the growth in bank loans to the non-financial sector is substantially smaller than the very high growth rates in corporate issuance. Some of the largest corporate bond issues have been to finance M&A activity, but many companies are also turning to the bond markets for regular debt financing, a pattern that could have long-term effects on corporate governance in the euro area by undermining 'relationship banking'.

66 This process of disintermediation has been closely linked to competitive pressures on bank net interest margins throughout the euro area (Chart M). The growing tendency over recent years for retail depositors, particularly when dissatisfied with low interest rates, to invest in mutual funds and life assurance products has required banks to rely more heavily on wholesale funds. This has generally raised banks' funding costs. At the same time, greater competition within the banking sector, and (following EMU) the access of the corporate sector to a deeper and more liquid capital market, has put further pressure on the margins earned by lending to large companies.

SOURCES OF BANK REVENUE IN THE EURO AREA **CHART M**



Source: IBCA BankScope

67 In many cases, of course, banks operating in the euro area are themselves playing a proactive role in the process of disintermediation, as they seek to boost non-interest income to offset declining interest margins. For example, many banks have established their own mutual funds; indeed, a majority of euro-area mutual funds are run by banks. A number of euro-area banks have also merged (or formed alliances) with insurance companies in an effort to boost non-interest income and, in some cases, to leverage up on their branch networks by selling more products through them. Many banks are seeking to increase their

activity in securitisation, underwriting and derivatives trading. It seems that some of the larger banks, for example, have been encouraging highly-rated corporate customers to fund themselves in the commercial paper and corporate bond market because they find it more profitable to service these clients by arranging and distributing debt issuance than to lend to them on balance-sheet, given the capital requirements on loans. While banks are in these ways often in the forefront of championing disintermediation, those banks with larger balance-sheets and stronger international distribution are often thought to be in a stronger position to exploit successfully the opportunities in securities markets. Other banks may increasingly specialise in higher-margin lending to smaller companies and less capital-intensive fee-generating business.

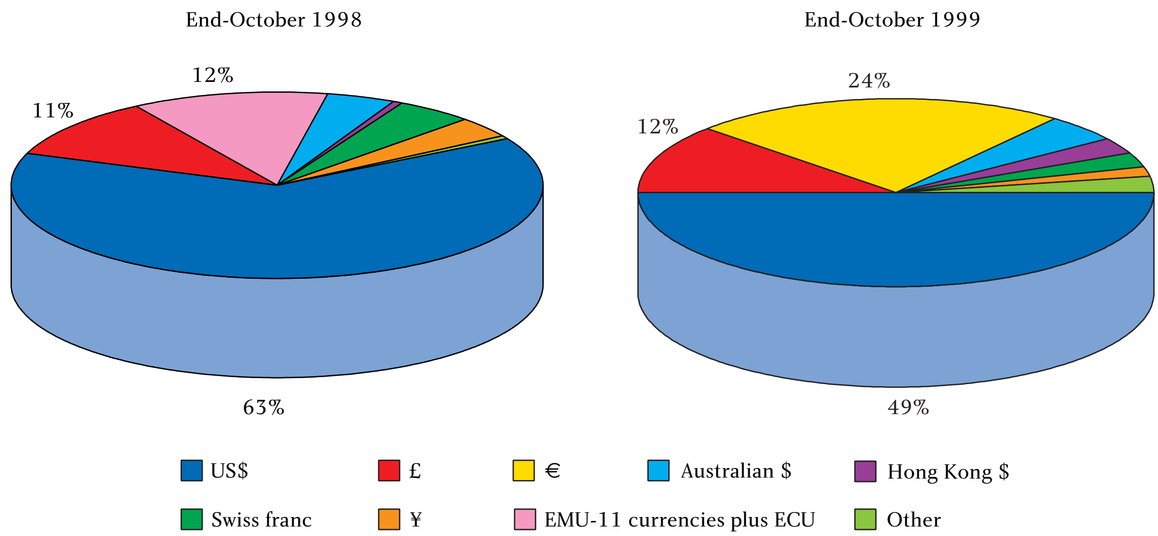
The Euro Commercial Paper market

68 One example of the gathering pace of disintermediation and securitisation of the European banking system is the recent growth in the use by euro-area borrowers of the Euro Commercial Paper (ECP) market for short-term funding purposes. The ECP market is an international institutional market for commercial paper, denominated in a wide range of currencies, not just euro, and normally cleared through Euroclear or Cedelbank. Market firms disagree on the exact definition of the ECP market, the differences relating partly to the treatment of sovereign Treasury bills. In addition, the distinction between the ECP market and domestic commercial paper markets is in some cases becoming more blurred, as domestic paper is increasingly marketed abroad and settlement systems merge. The figures in this section, from Barclays Capital, exclude those domestic CP markets in the euro area that exhibit pricing, distribution, investor or tax characteristics which are still significantly different from those pertaining in the ECP market.

69 The total ECP market grew by nearly one-third between end-October 1998 and end-October 1999, with outstandings rising to some $170 billion. Within this overall total, the proportion issued in euro rose from an EMU-11 currency equivalent of approximately 12% at end-October 1998 to 24% a year later, suggesting that EMU has significantly affected issuing behaviour (Chart N). At the same time, the proportion of ECP issued by euro-area institutions has risen from approximately one-third to one-half of the total. Market firms point out that some of these euro-area issuers are still choosing to issue in US dollars, with the proceeds swapped back into euro – a practice which is often driven by foreign exchange swap opportunities.

70 Only roughly one-fifth of outstandings at end-October 1999 is estimated by Barclays Capital to have been issued by corporates, the rest being largely accounted for by banks, governments and asset-backed vehicles. The low share of corporate issues indicates that the pace of disintermediation at the short end of the debt market is still slow, in contrast to the much more rapid growth in corporate bond issuance. This may reflect in part the fact that to date a relatively low number of companies in Europe have the external credit ratings that are generally deemed necessary in the ECP market. It may also reflect the difficulties of creating a unified commercial paper market, given persistent barriers between domestic markets and the ECP market. Market firms indicate that one of the principal hurdles to a unified ECP market is the regulation stipulating that a key part of the investor base – namely money-market mutual funds in some countries, notably France – may not invest more than a small proportion of its assets in ECP, on the grounds that – unlike domestic CP – ECP is still

ECP OUTSTANDING AT END-OCTOBER 1998 AND END-OCTOBER 1999 CHART N



Source: Barclays Capital

classified as 'unregulated'. According to market estimates, some one-half of ECP issuance outstanding is held by money market funds or other fund managers, suggesting that these savings institutions represent a key part of demand for ECP.

The corporate bond market

71 The spectacular four-fold increase in gross corporate bond issuance between the first nine months of 1998 and the same period of 1999 is the most remarkable development to date in the euro-denominated bond market, and indicates the boost given by the euro to the trend towards disintermediation. While there may have been some special factors causing a bunching of issues in the first three-quarters of 1999 (in particular the delay of issuance scheduled for late 1998 as a result of the LTCM and Russian crises, and the bringing forward of issuance within 1999 because of Y2K), few commentators doubt that this rise is of considerable underlying significance. Market firms point, in particular, to three factors that may help explain the phenomenon: first, the greatly increased demand for credit products by investors, together with the desire of borrowers to diversify their funding; second, the large rise in M&A activity in the euro area, which has occasioned some of the biggest issues; and third, the fact that borrowers in some of the smaller euro-area economies have access for the first time to a deep and liquid capital market in their own currency. In other respects, the corporate bond market shows many of the same characteristics as the euro-denominated bond market in general, in particular the increase in average issue size and the move down the credit curve.

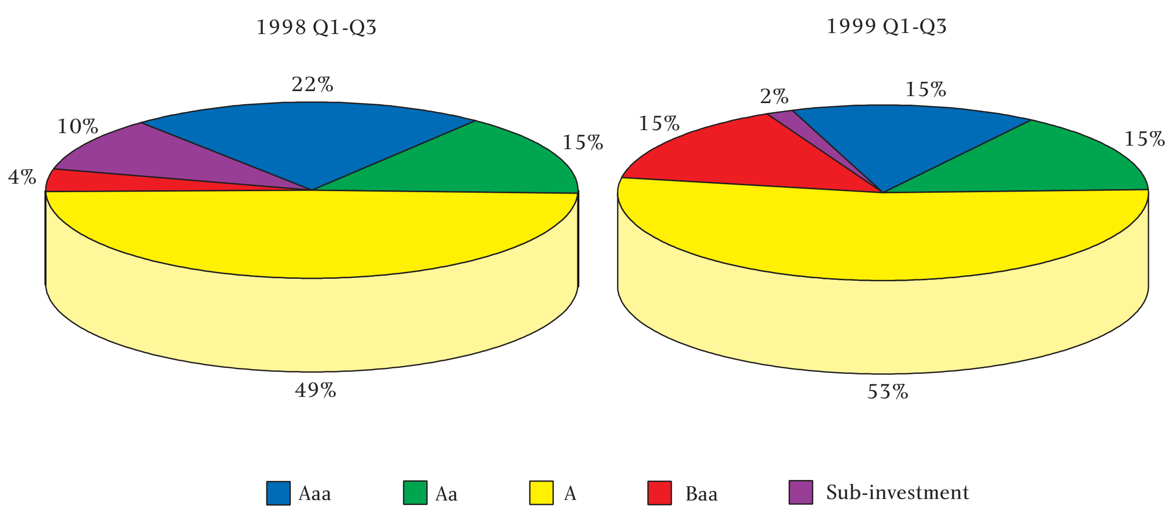
Changes in the credit composition of issuance and the use of ratings

72 The trend towards increased issuance of lower-rated debt to meet investors' growing appetite for credit products is reflected in the credit breakdown of total non-government

euro-denominated bond issuance. According to CDB data using Moody's ratings, issuance continues to be dominated by borrowers rated between Aaa and single A. However, within this category, issuance by Aaa non-government borrowers has fallen in absolute terms, while there has been a marked increase in the share of issuance accounted for by single A bonds – from 20% in the first nine months of 1998 to 27% in the same period of 1999. The introduction of the euro was widely expected to be a catalyst for a deepening of the European high-yield market, but issuance in this sector has remained low.

73 Within the total non-government sector, the corporate bond market has shown a similar pattern in credit terms. While Aaa issuance fell as a share of total corporate issuance from 22% to 15% between the first nine months of 1998 and the same period of 1999, the share of single A issuance increased from 49% to 53%. Even more notable was the rise over the same period in the share of corporate issuance accounted for by Baa issues, from 4% to 15%. (Chart O).

CORPORATE EURO-DENOMINATED BOND ISSUANCE BY MOODY'S CREDIT RATING: FIRST THREE-QUARTERS OF 1998 AND 1999 **CHART O**



Source: CDB

74 The growing importance of the corporate bond market as a source of euro-area company funding, and the trend towards greater cross-border distribution of corporate issues, has increased the demand for external credit ratings for European companies. Many issuers are becoming more reluctant to rely on domestic 'name recognition' and keen to appeal to a wider investor base. Fitch IBCA reports that the number of industrial and commercial companies (including utilities) which it has rated in Europe has risen from 109 as at end-December 1998 to 143 at end-September. S&P reports a similar trend, with the number of ratings for European non-financial companies rising from 232 at end-December 1998 to 282 by end-September. The number of such companies with a Moody's rating has also risen – from 273 at end-December 1998 to 323 at end-September.

Fund management trends in debt markets

75 The removal by EMU of intra euro-area currency asset/liability matching restrictions was generally expected to lead to geographical diversification by euro-area investors away from their local to other euro-area markets. However, according to some market firms, even those investors which now consider all euro-area issuance as 'domestic' have, in many cases, not to date diversified very heavily away from home market issues within the sovereign bond market. This is because they have seen little appreciable yield or risk diversification advantage to broadening a portfolio from say German Bunds to French OATs or vice versa, given existing tight spreads and high correlations. In some cases, liquidity considerations in non-core markets may also have militated against geographical diversification.

76 By contrast, the expectations of significant rebalancing of bond portfolios towards credit as a separate asset category have been more fully realised. Indeed, now that national currency and monetary policy differences have disappeared within the euro area, credit has become a key determinant of risk and added value in euro-area bond funds judged relative to a bond index. As a result, there has been heavy investor demand for the fast growing euro-denominated corporate bond sector, and a generally supportive environment for the trend towards disintermediation in company financing discussed above. The evolution and greater use of hybrid government and corporate bond indices has accompanied, and in some cases encouraged, this trend towards credit (Table 5). In addition, the increased focus on corporate credit has continued to require the rapid build-up of expertise among investment firms in analysing credit risk effectively and in pricing it appropriately. To date, of course, opportunities for investors in many sectors of the corporate bond market remain relatively limited in relation to the more highly developed US corporate bond market. As a result, market firms believe that sustained growth and credit diversification of corporate issuance will be needed before a pan-sector euro-area corporate bond market can be said to have matured.

77 The desire for more geographical diversification within the euro area and for yield pick-up relative to sovereign bonds has also encouraged significant non-German interest (particularly from within the euro area) in the Jumbo Pfandbrief market. Considerable efforts have been made to internationalise (particularly Jumbo) Pfandbriefe by marketing them to foreign institutions, and non-German investors now account for a sizeable portion of most Jumbo placings. This trend has been reinforced by the fact that Pfandbriefe currently account for a large part of the 'credit' portion of the wider composite European bond indices. Some international investors, however, have shown less enthusiasm for the Pfandbrief market and have argued that, because it enjoys tight spreads and a high correlation with sovereign bonds, they prefer to diversify further down the credit curve.

TABLE 5: SOME EURO AREA AND BROADER EUROPEAN BOND INDICES

Index provider	Barclays Capital	Lehman Brothers International	Merrill Lynch	JP Morgan	MSCI	Reuters	Salomon Smith Barney
Index	Euro Government Bond Index	a) Euro Aggregate Index b) Euro Aggregate 500+ Index c) Pan-Euro (Euro Aggregate & Non-Euro European Currency) Index d) Pan-Euro High Yield Index	a) EMU Direct Government Bond Index b) EMU Broad Market Index c) EMU Large Cap Index d) European Currencies High Yield Index e) European Issuers High Yield Index f) Sterling Broad Market Index g) Pan-Europe Broad Market Index h) Euro Government Bill Index i) Euro-Denominated Emerging Market Sovereign Plus	a) EMU Government Bond Index b) European Government Bond Index	a) EMU 11 Sovereign Debt Index b) Euro Credit Index (ECI)	a) GOVTOP Euro Government Bonds Index b) PFANDTOP Euro Pfandbriefe Bond Index c) EMTOP Euro Emerging Markets Bond Index d) CORPTOP Corporate bond index	a) EMU Government Bond Index (EGBI) b) Euro Broad Investment Grade Bond Index (EuroBIG)
Description	Sovereign fixed-rate bond index Issues with market capitalisation greater than €1 billion	a), b) & c) – Investment grade fixed-rate bond index d) Sub-Investment grade b) Market capitalisation greater than €500 million	a) Euro-sovereign fixed-rate bond index b) Euro-denominated investment grade fixed-rate bond index c) Same as b), but with a market capitalisation greater than €500 million for non-sovereigns and no unrated bonds d) Sterling and euro-denominated non-investment grade fixed-rate bond index e) European domiciled high yield issuers denominated in all currencies f) Sterling-denominated investment grade fixed-rate bond index g) Combines EMU and Sterling Broad Market with Swedish, Danish and Swiss Governments h) Government bills issued by euro participants i) Euro-denominated debt of sovereign issuers rated BBB or lower	Sovereign fixed-rate bond index	a) Sovereign fixed-rate bond index b) Investment grade fixed-rate bond index	a) Euro-denominated government bonds from EMU countries b) Euro-denominated Jumbo Pfandbriefe from issuers in the euro area c) Euro-denominated bonds from emerging market countries d) Euro-denominated bonds from corporate entities (investment grade)	a) Sovereign fixed-rate bond index b) Investment grade fixed-rate bond index covering both EMU government bonds and corporate bonds denominated in euro or any EMU participating currency
Country coverage of issuers	EMU-11 excluding Luxembourg	Any	a) and h) EMU-11 b), c), d), e), f), g) Any issuer domiciled in an investment grade rated country (BBB or high foreign currency long-term debt rating) i) all countries with a BBB or lower foreign currency long-term debt rating	a) EMU-11 excluding Luxembourg b) Any	a) EMU-11 excluding Luxembourg b) Any	a) EMU-11 excluding Luxembourg b) All Pfandbriefe from issuers in euro area c) Institute of International Finance (IIF) countries d) Any	a) EMU-11 b) Any
Number of issuers	10	a) 428 b)213 c) 559 d) 58	a) 10 b) 426 c) 171 d) 52 e) 58) as at f) 275 g) 704 h)5 i) 17) 31 Oct.	a) 221 as of b) 245 Nov.	a) 10 b) 204	a) 10 b) 63 c) 40 d) 70 approx.	a) 10) as at b) 198) 1 Nov.
Number of issues	268	a) 3,915 b)1,165 c) 4,516 d) 73	a) 283 b) 5,200 c) 904 d) 69) as at e) 112 f) 654 g) 5,899 h) 79 i) 74) 31 Oct.	a) 229) as of b) 253) Nov.	a) 306 b) 1,030	a) 346 b) 210 c) 63 d) 80 approx.	a) 280) as at b) 937) 1 Nov.

Note: in addition, indices are published by Bloomberg (which calculates EFFAS indices), Datastream and ISMA

Source: the information on each index in the Table was provided by the firm responsible

E EQUITY CAPITAL MARKETS

78 In this *Practical Issues*, we focus on three principal themes relating to equities: fund management trends following the introduction of the euro; the long-term development of the European mutual fund industry; and exchange, clearing and settlement developments (in Chapter 3). Euro equity trading on the LSE is also covered briefly.

79 Equity issuance is not covered as a separate subject. The general trend towards disintermediation of the banking system discussed in the previous section is relevant to the growing investor interest in mutual funds as a savings product, but has so far had fewer direct implications for trends in equity issuance. While the European corporate sector is increasingly keen to replace some of its bank loan finance with securitised debt capital, most mature companies – particularly those targeting high returns on equity – are less keen to have recourse to new risk capital. New equity issues are sometimes used, of course, as a source of financing acquisitions involving share exchanges, and to fund growth in small fast-growing companies. In addition, new listings of previously state-held and privately-held equity remain a feature of European equity capital markets.

Fund management trends in equity markets

80 EMU has continued to act as a catalyst for a reduction in the home-country bias of many euro-area equity portfolios. By removing the exchange rate risk of diversification, the introduction of the euro has redefined the concept of 'domestic' for euro-area investors, encouraging diversification out of national markets to other euro-area markets. Many market firms, however, argue that the expectations that some commentators had of a wholesale and rapid rebalancing of the majority of euro-area equity portfolios have not to date been fully met. In reality, it may be misleading to generalise across 11 countries and many different classes of investor given wide variations in the speed of adjustment, in the appetite for change and in investment goals. Nevertheless, market firms claim that in many cases rebalancing is being effected through the investment of incremental new funds rather than the once-for-all rebalancing of existing assets.

81 A number of possible reasons for rebalancing taking place gradually have been cited by market firms and other commentators. First, some managers may prefer to remain largely invested in their domestic market where they have an analytical advantage, while others may be cautious about wholesale rebalancing before they have fully adapted their investment process and skill-sets to the task of managing pan euro-area portfolios. Second, mandate changes can often be cumbersome. Third, while many euro-area investors may be moving from a domestic index as benchmark to a pan euro-area index (in some cases tilted still towards their national market), others remain primarily driven by absolute returns and therefore less influenced by benchmark developments. Lastly, for taxable investors with large unrealised capital gains, it may be more attractive to invest new flows of funds outside their domestic market than to rebalance existing holdings.

82 When considering how the same issues might affect the UK investment community if the UK were to join EMU, many market firms expect that any rebalancing out of UK equities in favour of other euro-area equities would also be gradual. Some firms argue that the approach they might adopt ahead of entry could be heavily influenced by the

outcome of the Minimum Funding Requirement (MFR) review and in particular any resulting changes in the treatment of overseas assets.

83 The combined impact of increasing globalisation and EMU on product and capital markets has encouraged many market firms to shift the organisation of their research within the euro area to an industry/sector approach. In some sectors, in particular, it is generally thought to be increasingly appropriate to judge stocks against their sector peer group rather than their home-country peer group. This trend is further encouraged by recent cross-border M&A activity. However, there remains much variation in the degree to which managers concentrate on adding value and controlling risk at the individual stock, sector or even country level within the euro area. Some managers place most of the emphasis on 'bottom-up' stock selection and idiosyncratic stock risk. Others combine such an approach with consideration of sector risk. At the same time, some managers argue that EMU may accentuate the relevance of country factors since, in the absence of national monetary policy, asymmetric shocks may sometimes lead to significant country misalignments between economies, affecting competitiveness and company profitability, particularly if there is inadequate fiscal and supply-side flexibility. Those managers who eschew formal risk control at the country level within euro-area portfolios may seek to incorporate such country risk in their assessment of which companies in each sector to buy.

Equity benchmarks

84 The rebalancing of formerly national equity portfolios, the increasing interest in sector-based investment and market anticipation of an eventual common European equity trading platform, have all encouraged a significant proliferation of new indices over the last two years (Table 6). While there is fierce competition between the index providers, market firms think it unlikely that a single dominant benchmark will emerge that is considered appropriate across the European investment and stockbroker industry. There are a number of different factors which are crucial in determining which benchmarks gain most favour. Some investors prefer pan-European indices, while others require euro-area only indices, perhaps for currency asset/liability restriction reasons. In addition, the various indices vary in how narrow or broad is their stock coverage. An index narrowly focused on a small number of blue-chip stocks may appeal to the creators and users of derivatives products because of the greater liquidity of the underlying stocks, and it may also gain favour as a banner reference in the retail market. By contrast, the institutional fund management industry aiming for the most part to invest without a specifically large capitalisation bias may prefer a wider benchmark for performance measurement, on the grounds that it is more representative of the market as a whole.

TABLE 6: SOME EUROPEAN EQUITY MARKET INDICES[1]

	Broad/narrow[2]	Derivatives contracts	Country coverage	Pan-European/euro area	No of companies	No of economic groups/ broad sectors	No of sectors/ industry groups	% market capitalisation targeted/covered
Dow Jones								
Dow Jones STOXX 50	Narrow	Yes	16	Pan-European	50	9	19	32
Dow Jones EURO STOXX 50	Narrow	Yes	10	Euro	50	9	19	43
Dow Jones STOXX	Broad	No	16	Pan-European	600	9	19	80
Dow Jones EURO STOXX	Broad	No	10	Euro	320	9	19	80
Dow Jones STOXX ex UK	Broad	No	15	Pan-European ex UK	470	9	19	80
Dow Jones STOXX ex Euro	Broad	No	6	Europe ex euro	330	9	19	80
Dow Jones STOXX Large[3]	Mid	No	16	Pan-European	200	9	19	n/a
Dow Jones STOXX L&M[3]	Mid	No	16	Pan-European	400	9	19	n/a
FTSE International								
FTSE Eurotop 100[4]	Narrow	Yes	15	Pan-European	100	10	39	45
FTSE Eurobloc 100	Narrow	Yes	10	Euro	100	10	39	68
FTSE Eurotop 300	Mid	Yes	15	Pan-European	300	10	39	80
FTSE Eurotop 300 ex UK	Mid	Yes	14	Pan-European ex UK	300	10	39	80
FTSE Eurobloc 300	Mid	No	10	Euro	150	10	39	80
FT/S&P-A Europe	Broad	No	15	Pan-European	713	10	39	85
FT/S&P-A Eurobloc	Broad	No	10	Euro	337	10	39	85
FT/S&P-A Europe ex UK	Broad	No	14	Pan-European ex UK	514	10	39	85
FTSE EStars[4]	Narrow	Yes	5	Euro	29	10	39	Approx 34
MSCI								
MSCI EMU	Broad	No	10	Euro	343	10	23	60
MSCI Europe	Broad	No	15	Pan-European	599	10	23	60
MSCI Europe ex UK	Broad	No	14	Pan-European ex UK	465	10	23	60
MSCI Europe ex EMU	Broad	No	5	Europe ex euro	256	10	23	60
MSCI Euro	Narrow	Yes	10	Euro	130	10	23	Approx 54
MSCI Pan-Euro	Narrow	Yes	15	Pan-European	236	10	23	Approx 54
S&P								
S&P Euro Index	Mid	Yes	10	Euro	158	10	23	70-75
S&P Euro Plus	Mid	Yes	14	Pan-European ex UK	200	10	23	70-75
Salomon Smith Barney (SSB)[5]								
SSB BMI Eurozone	Very Broad	No	10	Euro	1,016	10	35	100[6]
SSB PMI Eurozone	Mid	No	10	Euro	210	10	35	80[6]
SSB BMI Europe	Very Broad	No	15	Pan-European	1,874	10	35	100[6]
SSB PMI Europe	Mid	No	15	Pan-European	346	10	35	80[6]

Notes

1 This list includes broad market indices and large capitalisation indices. It excludes indices which are mid and small capitalisation sub-indices of a broad market index.

2 Broad/narrow classification reflects the capitalisation range of companies covered by the index.

3 A selection of the new STOXX Size Indices. These are also available for Euro and Europe ex UK area.

4 FTSE Eurotop 100 and FTSE EStars are fixed baskets in stock weighting terms.

5 SSB indices are float-weighted; BMI - Broad Market Index; PMI - Primary Market Index.

6 Target market capitalisation coverage of all companies with float >$100 million.

Source: Russell/Mellon Analytical Services

THE DEVELOPMENT OF MUTUAL FUNDS IN EUROPE

The mutual fund sector in Europe has changed substantially over the past decade. Whereas at the end of the 1980s the sector was small and concentrated in a few countries, it now plays a major part in the financial sectors of a large number of European countries. Indeed, it accounts for a significant proportion of households' financial assets and is an increasingly important holder of corporate liabilities. This Box outlines the development of mutual funds in Europe over the past decade and discusses their evolution in the past year in the light of EMU. Comparisons are made, where feasible, with the US, where mutual funds have become key players in the financial markets.

According to FEFSI data, the mutual fund industry was little developed in 1989 in the majority of European countries. Total assets in 1989 amounted to ECU 546 billion (equivalent to 16% of EU GDP). France was by far the leader in the field, accounting for over 40% of total European assets, followed by the UK at 14%, with Luxembourg, Italy and Germany completing the list of the top five countries. In 1989, these five countries held 88% of total European fund assets. The decade since 1989 has seen remarkable development in every European country. Overall, the number of funds has more than doubled, and total net assets have increased by a factor of four (an annualised growth rate of 17%). By end-1998, total assets had reached ECU 2,267 billion, representing some 31% of EU GDP. At the same time, there has been a spectacular increase in assets in Spain – now the fifth largest European mutual fund industry, ahead of Germany – and in Italy. Between 1996 and 1998 alone, mutual funds in Italy increased their share of EU assets from 7% to 16%. As the mutual fund industry in other EU countries has grown sharply from a low base, there has been a relative decline in the share of the French mutual fund industry, but it remains the largest in the EU in absolute terms.

At end-1998, for every person in the EU, on average ECU 6,023 was held in mutual funds. This represents around a third of the per capita total for the US. When expressed as a percentage of GDP, the EU total (31%) is less than half the ratio in the US, where mutual fund assets represented 65% of GDP at end-1998 (up from 26% in 1989). Some market firms take this to be an indication of significant further potential for growth in mutual fund assets across the EU. Moreover, there remain wide variations between countries across the EU. For example, mutual fund assets represented only 5% of GDP in 1998 in Finland, compared with 41% in France and 35% in Italy.

The breakdown of mutual funds by asset category has also changed markedly over the last ten years. At end-1998, 32% of the total net assets of EU mutual funds were invested in equity funds, 35% in bonds, and 18% in money market funds, with balanced funds and others making up the remaining 15%. By contrast, in 1992 the single biggest fund type was the money market fund. The share of money funds has declined steadily over the period, mirroring the growth in importance of equity funds. Bond funds have represented a roughly constant (one-third) share. The switch from money market funds to equities may partly be the result of the changing demographic structure of Europe and the desire for increased long-term savings for retirement. However, high returns on equities in the 1990s have also had an arithmetic effect on the size of the sector, distinct from any cash inflows. Moreover, the relative importance of the decline in money market funds can be attributed very largely to specific (including tax) developments in France. At end-1992, two-thirds of French mutual fund assets, some ECU 240 billion, were invested in money market instruments. This represented 74% of the European total of money market funds. By end-1998, the total assets of French money market funds had fallen to ECU 157 billion, less than 40% of the European total. There remain, of course, major national differences in asset allocation preference. The majority of UK mutual funds invest in equity markets, with less than 1% in money markets. By contrast, in Italy the majority is invested in bonds, with equity funds comprising only 18%.

Early signs suggest that the growth of mutual fund assets seen over the last decade has continued after the start of EMU. The third Table below shows the average monthly inflows into the mutual funds of the four largest euro-area economies for the past three years, as well as the figures for the first eight months of 1999. Merrill Lynch estimates that average net inflows in the first eight months of 1999 were $22.1 billion per month. This is similar to the average net inflows per month in 1998. However, within this total, EU investors appear to some extent to be switching inflows back to money market and balanced funds. Inflows to equity funds have been slightly lower and those to bond funds markedly lower than in 1998, perhaps reflecting investor concerns about market valuations and the low yields available in the bond market in the early part of 1999.

TOTAL NET ASSETS OF MUTUAL FUNDS IN EUROPE (ECU MILLION)

Country	1989	1994	1998	% increase 1989-98	% GDP 1992	% GDP 1998
	1	2	3	4	5	6
Austria	10,601	19,155	54,336	513	8.3	28.5
Belgium	4,215	15,434	48,236	1,144	4.1	21.5
Denmark	3,126	4,452	16,605	531	2.4	10.6
Finland	79	889	4,878	6,175	0.1	4.7
France	248,591	406,498	534,123	215	35.3	41.3
Germany	52,300	92,065	166,834	319	3.7	8.6
Greece	111	4,551	27,425	24,707	1.2	25.3
Ireland	5,631	6,359	20,241	359	12.1	29.9
Italy	32,520	65,425	371,912	1,144	4.0	34.8
Luxembourg	61,676	231,376	433,037	702	1,348.6	2,788.1
Netherlands	19,419	39,043	75,102	387	11.4	21.8
Norway*	1,263	4,188	9,533	755	1.9	7.7
Portugal	1,917	10,521	19,845	1,035	9.1	23.6
Spain	6,674	70,129	203,779	3,053	10.6	41.1
Sweden	19,976	16,482	47,136	236	8.9	24.7
Switzerland*	16,445	31,770	61,288	373	8.4	25.5
UK	78,864	108,881	243,607	309	10.0	20.2
Total	**563,408**	**1,127,218**	**2,337,917**	**415**	**8.2**	**25.2**
Total EU	**545,700**	**1,091,260**	**2,267,096**	**415**	**16.1**	**31.4**
Total EU-11	**443,623**	**956,894**	**1,932,323**	**436**	**15.3**	**33.0**

Source: FEFSI
*not a member of the EU

MUTUAL FUND ASSET DISTRIBUTION IN 1992 AND 1998 PERCENTAGE BREAKDOWN

Country	Money market		Bonds		Equity		Balanced and other	
	1992	1998	1992	1998	1992	1998	1992	1998
France	63.9	29.5	23.1	30.6	7.9	17.1	5.0	22.9
Germany	0.0	13.8	82.2	39.7	16.1	43.0	1.8	3.5
Italy	23.4	18.7	38.8	50.5	21.2	18.2	16.6	12.6
Luxembourg	30.2	15.8	43.4	46.3	3.9	28.4	22.5	9.4
Spain	52.4	24.7	41.0	36.9	0.4	19.9	6.2	18.5
UK	0.7	0.5	2.5	7.7	93.5	83.5	3.3	8.3
Europe	40.0	17.9	31.5	35.4	17.4	33.2	11.1	13.3
EU	39.5	18.5	32.8	34.9	18.4	31.8	9.2	14.8
EU-11	43.9	20.7	35.6	39.2	10.6	24.2	9.9	15.9

Source: FEFSI

AVERAGE MONTHLY NET INFLOWS TO MUTUAL FUNDS - IN FRANCE, GERMANY, ITALY AND SPAIN ($ BILLION)

Investment type	1996	1997	1998	Jan-Aug 1999
Money market	2.2	-1.7	0.4	8.0
Bonds	2.4	5.9	11.1	2.7
Equities	0.1	4.4	6.8	5.7
Balanced & other	1.2	2.6	4.8	5.7
Euro-area 4	**5.7**	**11.1**	**23.1**	**22.1**

Source: Merrill Lynch

EURO EQUITIES TRADING ON THE LONDON STOCK EXCHANGE

The London Stock Exchange (LSE) runs markets in both international and domestic equities. The international market is the largest in the world, and the LSE is able to accommodate trades in any one of 37 currencies. In the first three-quarters of 1999, over 38% of all equity turnover through the LSE (international and domestic) was in euro.

On the domestic market, there are no proposals at present to convert any UK security to euro pricing. The LSE is, however, ready to convert securities from sterling to euro pricing where circumstances warrant. The conversion of any particular security will be judged against the interests of the market as a whole, using the following criteria published in 1998.

- Demonstrable and sustainable market demand for trading in euro.
- Continued access for sterling-based investors to the LSE's markets, at fair prices.
- Euro pricing must be appropriate for the security. This criterion includes taking account of the views of the issuer, and whether the security is to be redenominated in euro or the euro has become a key trading or accounting currency for the issuer.

Although there has been little demand for euro trading in UK domestic securities during the first three-quarters of 1999, there has been significant use of the euro in relation to Irish securities. On 8 July, the LSE introduced the Irish privatisation stock, Eircom plc (previously Bord Telecom Eireann plc) to the order book, priced in euro. That first day's trading on the order book represented (at the time) the sixth most heavy order book trading in a security in a single day this year, with over 33 million shares traded. A few days later the LSE converted the next three most liquid Irish stocks from sterling to euro pricing. At the same time, it promoted these stocks to the order book from the quote-driven platform, SEAQ. Over 95% of trades in these four securities are now denominated in euro rather than in sterling.

The LSE has carried out a significant programme of testing for euro readiness. In June, it asked member firms to undertake a range of mandatory tests of their ability to trade in euro, involving the full range of trading instructions: all firms passed successfully.
The LSE has also set up two optional euro testing environments within its customer development service. One mirrors a continuous euro trading environment; the other mirrors the conversion of stocks from sterling to euro.

CHAPTER 3: EURO INFRASTRUCTURE

A PAYMENT SYSTEMS

1 The previous *Practical Issues* described the major changes to the wholesale payment landscape in Europe since the launch of the euro. In this edition, we explain the use which has been made of different euro payment systems to date; describe varying approaches by banks to the management of their euro liquidity cross-border, requirements for information and the continued use of correspondent accounts; and consider some major influences on the future development of payment systems. Developments in cross-border retail payments are also summarised.

2 The main themes of this section are as follows.

- Euro payment systems have become both easier to use and have generally been more reliable than the market had originally feared.
- TARGET is by far the dominant euro payment system, by both value and volume of payments, with traffic increasing during the year. This system has overall been more efficient and robust than had been expected, once the initial teething problems were overcome, although a small number of the component RTGS systems have not been wholly satisfactory.
- The volume of payment traffic going through the competing EBA EURO1 system has also grown, probably in part reflecting a decline in correspondent banking.
- CHAPS euro is being heavily used, reflecting the scale of euro financial market activity in the UK: its share of cross-border payments reached 18% in September. Like a number of the other euro RTGS systems, CHAPS has virtually a 100% record of availability.
- The use of correspondent banking is likely to diminish further over the next two years, but it will not disappear completely from the payment landscape.
- In general, payment flows are running smoothly and large payments are only being made late in the banking day when the receiving bank has been given notice.
- Bank treasurers are concerned to minimise their need for intraday liquidity and the associated collateral. In managing liquidity in a real-time environment, they are heavily reliant on timely and accurate information. They would welcome better information when individual RTGS systems encounter difficulties.
- The ECB has suggested that, in the longer run, there will be a need for greater harmonisation of the different RTGS systems, and for enhanced functionality, such as liquidity saving and cash management features. The impact of continuous linked settlement (CLS) for foreign exchange transactions, together with the major changes underway in the securities' clearing and settlement arena, will also need to be taken into account in future payment systems' development.
- Most CHAPS euro members already have cash management systems which provide them with the functionality, across several systems, that they require. The one

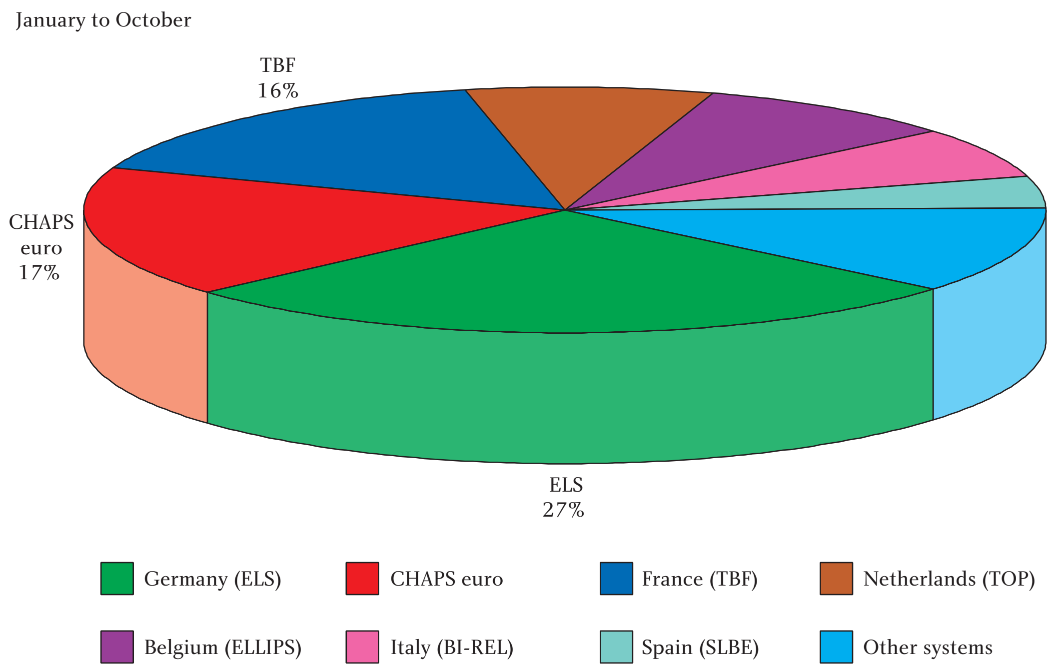
function which banks cannot develop in-house, and that does not exist in TARGET, is incoming payment queue visibility, but this would not be an unequivocal benefit.

Use of different payment systems

Payment flows through different systems

3 Chart P shows the share of the main systems in aggregate cross-border euro RTGS payments, by value, for the first ten months of 1999. The proportion accounted for by CHAPS euro has increased during the year, reaching 18% in September.

CROSS-BORDER EURO RTGS PAYMENTS BY VALUE **CHART P**



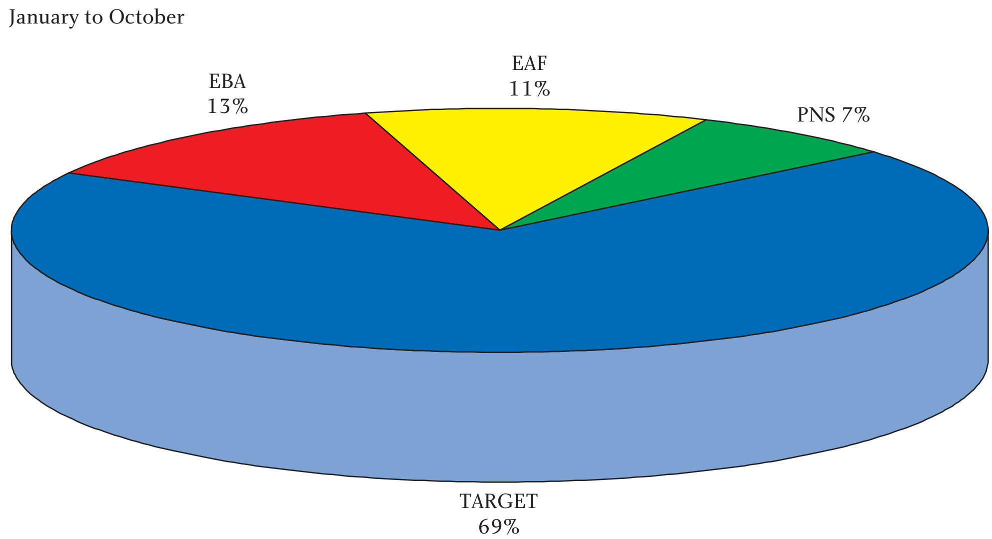
Source: ECB

4 Chart Q compares the relative use of cross-border euro RTGS and non-RTGS payment systems, calculated on the basis of aggregate payment values from January to October. In terms of value, TARGET has maintained the lion's share of euro payment traffic to date. Cross-border payments have increased as a proportion of total TARGET payments (both in terms of value and volume).

5 Table 7 shows quarterly data, and Chart R monthly data, for the volume of payments through different systems so far this year. The data do not capture correspondent banking transactions, which might account (by volume) for one-quarter of interbank business and three-quarters of non-bank customer business. The overall volume of payments, including correspondent traffic, has remained at roughly the same level as in 1998, but with some reduction in interbank transactions, presumably because banks can now undertake one euro-denominated treasury transaction instead of several previous EMU-11 currency transactions. Against this background, the volume growth in TARGET and the EBA EURO1 system is all the more striking. The increase in the use of the EURO1 system may in part reflect a rationalisation of correspondent banking activity, as the growth in volume has come

primarily from additional customer payment traffic (the average size of EURO1 payments has fallen by some 40% to around €2.5 million during the year).

RELATIVE USE OF EURO PAYMENT SYSTEMS BY VALUE **CHART Q**



Source: ECB

TABLE 7: USE OF EURO PAYMENT SYSTEMS BY VOLUME: FIRST THREE-QUARTERS OF 1999

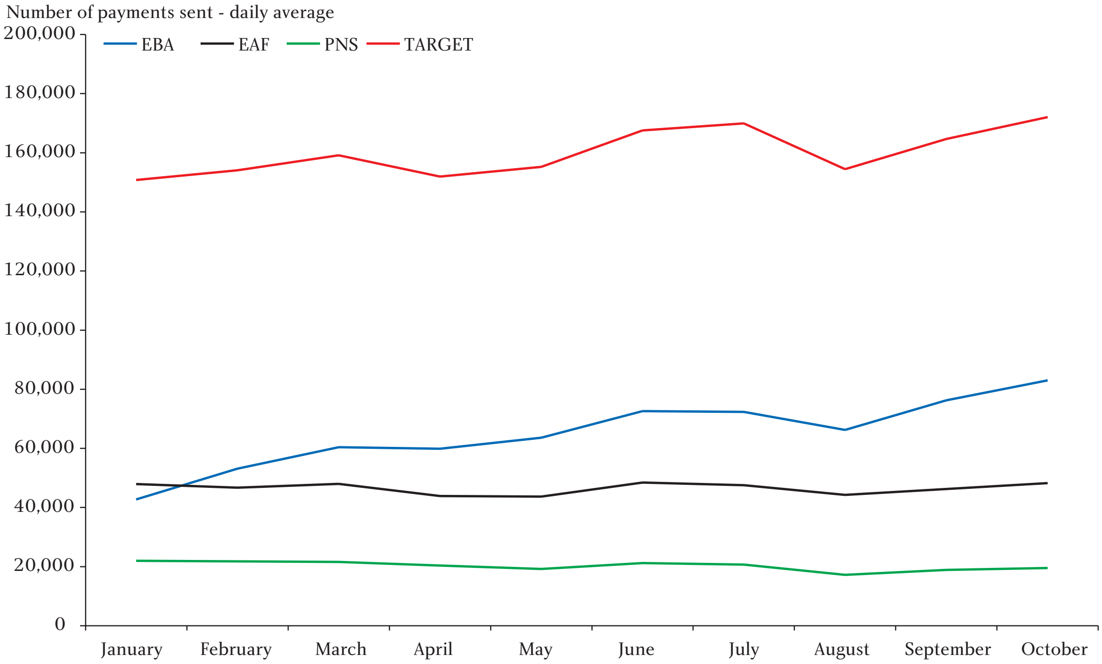
Number of payments (daily average)	Q1	*% of total*	Q2	*% of total*	Q3	*% of total*
TARGET						
Cross-border	24,646	9	28,248	10	30,004	10
Domestic	130,012	47	130,002	45	133,019	44
Total TARGET	154,658	56	158,250	55	163,023	54
Non-RTGS						
EURO1	52,091	19	65,362	22	71,617	24
EAF (Germany)	47,544	17	45,340	16	46,022	15
PNS (France)	21,767	8	20,264	7	18,920	6
Total	**276,060**	**100**	**289,216**	**100**	**299,582**	**100**

Source: ECB

Availability of payment systems

6 The availability of TARGET as a whole has been broadly stable through the year. But the ECB stated in *Cross-border Payments in TARGET: A Users' Survey*, November 1999, that availability is 'not yet satisfactory for all components of the system'. Market attention has focused on particular difficulties with a very small number of RTGS systems, including in Germany. All other systems, including CHAPS euro, have functioned consistently at virtually 100% throughout the year.

USE OF EURO PAYMENT SYSTEMS BY VOLUME: FIRST TEN MONTHS OF 1999 — CHART R



Source: ECB

7 The fail rate for TARGET cross-border payments (ie the percentage of payments returned because of incorrect formatting or information) has halved since January and February, and is now stable at less than 0.5%. This rate is better than expected. The fail rate for outgoing CHAPS euro payments has been lower than the average.

8 The ECB co-ordinates a regular contingency testing programme for all NCBs. They all have a back-up site for their RTGS systems. If back-up systems are not in the event available, contingency plans then rely on manual processing. TARGET has always had the facility for NCBs to input payments directly into S.W.I.F.T. should the RTGS in any country cease to be available, but the manual processing involved would greatly restrict the number of payments that could be processed. The ECB has indicated that it believes many commercial banks need to improve their own contingency procedures to cope with such a situation. In the UK, the Bank of England has discussed with CHAPS euro members the limited number of 'critical' payments it could make on their behalf should the UK RTGS system become unavailable; CHAPS euro members have prepared contingency plans accordingly.

Payment conventions

9 The Heathrow Group, which has now been subsumed under the umbrella of the European Banking Federation (EBF), recommended in July 1998 that, as standard behaviour, the payer bank should decide on the payment route used for any particular payment, but recognised that this convention might be modified by bilateral agreement. In practice, it has become common for bilateral agreements, or in some cases regular stipulation by the recipient, to determine payment routing. For instance, some banks when putting business through a broker insist that their request for funds is conditional on a specific routing. Banks from some countries do this as a matter of course, although practice does vary. The money market has proved liquid enough for this *modus vivendi* not to be disruptive – though

some believe it could cause problems if money market liquidity were, for whatever reason, to become particularly tight.

10 The June 1999 *Practical Issues* noted that the compensation guidelines agreed by the Heathrow Group in December 1998 were increasingly being applied. These guidelines relate to payments not received on the correct date, and to losses arising from errors in a payment instruction. Those using the Heathrow Group compensation guidelines believe they are working well, and have proved relatively straightforward to implement. In some cases market practice has been to apply the loss of interest clauses, but not always the administration charges. The stipulation that all claims should be made within 90 days was waived initially, but is to be applied for any claims under the guidelines arising after 1 December. That said, there are still a number of different compensation schemes covering these cases being used across Europe, at national and international level, sometimes distinguishing between treasury and commercial payments. The EBF is investigating whether a single scheme might be developed for all users, to replace the existing schemes. This might involve using the same interest rate basis as the EBF's late payment guidelines (detailed below): ie the ECB's official intervention rates rather than EONIA.

11 The EBF guidelines on liquidity management in the euro area, originally issued in December 1998 and revised more recently in September (full details are available on the EBF website), recommend that payments should be sent as early in the day as possible, and in any case within two hours of the payment order; and that the last hour of TARGET operations (17:00 to 18:00 CET) should be reserved for own account transactions (defined as payments for the benefit of the receiving direct member of TARGET). The latest revision of the guidelines recommends pre-agreement for all payments sent after 17:00 CET if same-day value is to be applied, and sets out compensation terms for failure to comply (which is not covered by the December 1998 Heathrow Group compensation guidelines). The ECB has welcomed these guidelines. NCBs are being encouraged to ensure that domestic RTGS rules do not conflict with the EBF guidelines. CHAPS euro rules have recently been amended to assist the promotion of uniform practice across the EU.

12 In general, payment flows during the day are running smoothly and large late payments are made only with pre-agreement of the receiving bank (in practice some banks treat 'large' as over €25 million, whereas others use over €50 million). However, some banks have indicated that, even when a counterparty is a signatory to the EBF guidelines, its operational teams have not always been made aware of the requirements. Where a number of staff, perhaps in different departments, are involved in the payment chain, it is clearly important to ensure that all are familiar with agreed best practice. In other cases, a bank may have agreed to the guidelines, but without taking due account of the systems or staff implications. For instance, if a late payment is to be made, does the sending bank have access to the necessary contact details to allow pre-agreement in a timely manner? (A number of banks post contact details on the relevant section of the EBF website.) As familiarity with agreed best practice increases over time, the small number of unexpected late payments should reduce further.

Cross-border collateral

13 The previous *Practical Issues* described the correspondent central banking model (CCBM), which allows TARGET users to offer securities held in one country's settlement system as collateral for central bank credit granted in another country, provided that both NCBs agree. The CCBM was designed as an interim, and partly manual, solution to facilitate the cross-border use of collateral, until a more sophisticated, private-sector solution could be implemented. The CCBM has, in practice, been increasingly used during the course of the year. In September, the CCBM was used for around one-third, by value, of outstanding Eurosystem open market operations. The UK has been the only 'out' country involved in lending using the CCBM; this lending forms part of the Bank of England's sterling open market operations, as well as intraday credit in CHAPS sterling and CHAPS euro. In the euro area, Belgium, Germany and Italy have been the three main sources of collateral chosen for use in CCBM transactions.

14 A viable longer-term solution to the transfer of collateral cross-border involves direct links between central securities depositories (CSDs). Links take a variety of forms. The most efficient links exist between systems offering real-time or frequent batch processing, which allow securities to be delivered and redelivered relatively speedily between systems. Delivery of securities between systems where one or both use infrequent (eg overnight) batch processing tends to be slower.

15 Links between CSDs need to be approved by the ECB if they are to be eligible for use in the Eurosystem's monetary policy and intraday credit operations. The Governing Council of the ECB has so far approved 47 direct links between securities settlement systems, based primarily in Austria, Belgium, Finland, France, Germany, Italy, Luxembourg, the Netherlands and Spain. (The two international CSDs, Euroclear and Cedelbank, have direct links with most of the major national CSDs in the EU.) Further links, some already in place and others in the process of being developed, will be assessed as part of a rolling programme over the course of 2000. The list of approved links on the ECB's website will be updated regularly; and the ECB will collect and publish data on the relative use of these direct links in addition to the use of the CCBM.

Liquidity management

16 Inevitably, the approach which a bank takes to euro liquidity management varies, depending on the size, type, and geographical spread of its operations. Small banks in the UK, which do not have direct access to CHAPS euro, tend to use either the services of a CHAPS euro member bank, or correspondent account relationships. In practice, it appears that many smaller banks in the euro area are adopting a similar approach to liquidity management, even though direct access to TARGET is available. The costs of setting up and running a dealing room, and managing the requisite portfolio of collateral, may be excessive for them. This section focuses on the issues faced by the larger banks.

17 The previous *Practical Issues* noted that many large banks manage their euro liquidity, and co-ordinate or centralise payments, from a single location (these need not be the same). In most cases, this involves bringing liquidity into a single centre each day, and channelling payment traffic through that centre. Alternatively, banks may operate a 'virtual' pool of

liquidity, centralising information and management rather than the funds themselves. The collateral used in obtaining the intraday liquidity need not be held in the same location as that from which payments are handled; the choice of eligible collateral reflects historical relationships, country limits, the relative liquidity of the securities and the reliability and ease of mobilising them in a given system.

18 Most large banks have separate teams responsible for payments and for treasury operations. Broadly speaking, the former are responsible for client contact; they want to ensure that customers' outgoing payments are made on time, and that incoming payments receive same-day value. Some banks give priority to non-bank customer transactions (for instance, in a S.W.I.F.T.-based messaging system, MT100s may take priority over MT202s). All banks seek to make bank and non-bank customer payment orders on the day requested, provided they are received before the bilaterally agreed cut-off time (which may be half an hour or less before the latest time at which the payment can be input into the payment system that day). But customers are usually encouraged to make payment orders early, and in many cases the previous day.

S.W.I.F.T. MESSAGES

The basis of most payment messages ('message types', or MTs) currently is:

- MT100 for customer transfers (non-bank); and
- MT202 for general financial institution transfers (including own account).

Each message received by the system is checked by S.W.I.F.T. for conformity with the format specification for that message type.

Another message type, MT103, is being introduced for customer transfers – see later Box.

19 A bank's treasury team is normally concerned with minimising the amount of intraday liquidity required for payments to be made smoothly and ensuring that end-of-day positions can be squared in time. The amount of intraday liquidity that a bank requires is estimated at 10-15% of the value of payment orders transacted in euro RTGS systems (although it is only 6-8% in CHAPS sterling), and may be less in other euro systems. Although intraday liquidity is free, in the sense that NCBs (unlike the US Federal Reserve) do not make an interest charge, holding and managing the necessary collateral may entail costs. The opportunity cost depends on the type of collateral accepted by different NCBs (though this is largely standardised); on whether the bank in question would hold that type of asset anyway; and, in some cases, on custodial costs, if the securities have to be held in a particular location to participate in Eurosystem operations.

20 Many UK banks operate with a minimum positive balance, above the zero minimum imposed by the Bank of England, as a buffer against unanticipated events and to allow urgent payments to be sent quickly. A similar reserve is normally maintained in EURO1, where some banks aim to keep a degree of headroom within their maximum credit/debit positions; but this is less important than in CHAPS, because of the different end-of-day constraints. It is also important for a bank with a short position in EURO1 to have available

the necessary RTGS balances to meet its end-of-day TARGET payment. EBA Clearing Members, including UK banks, are required to pay any short EURO1 balance within 10-15 minutes of its notification – shortly after 16:00 CET – and UK banks tend to reserve funds in CHAPS euro in order to be in a position to do so. This form of control is particularly important for 'out' banks, which have to square end-of-day positions and repay any intraday credit from their NCB, without access to the Eurosystem's standing facilities and without a reserve account averaging mechanism.

21 Some banks set intraday limits on net payments to individual counterparties or countries. Managing intraday limits on all individual TARGET addressees would be impracticable, in view of their very large number; but within an individual RTGS system, or one of the large-value netting systems, individual limits may be workable. Such limits are intended to encourage good behaviour – a bank which sends payments early is able to receive more payments early – and to ensure that liquidity is not locked up with banks which pay late. But they need to be managed flexibly.

SCHEDULING PAYMENTS

CHAPS banks have a long experience of scheduling payments, because they have been used in RTGS and steps towards it for a number of years.

Most members of CHAPS euro use computerised payment schedulers to help in managing the release of payment instructions to payment systems – including prioritisation, bilateral limits and queue management – although it is possible to manage the process manually and/or with more liquidity than might otherwise be required. A payment scheduler allows payment instructions to be entered early – in many cases the previous day – and then released into the payment system at the appropriate time or when there is sufficient liquidity. The need for and structure of computerised schedulers varies, depending on the type of customer business, and on whether a bank has bilateral agreements with major counterparties on the routing of payments. If a bilateral agreement covers routing and the timing of payments, this may reduce the need to schedule payments separately, as bilateral agreements reduce (though they can never eliminate) intraday and inter-system imbalances.

Ideally, a payment scheduler should span all the different payment systems used by a bank, and allow an individual payment or group of payments to be moved easily up or down the queue within a given system, or pulled out of one system and input into another – whether to take account of the availability of liquidity or to avoid re-inputting any queued EURO1 (or EAF or PNS) payments which may have missed the end-of-day cut-off. However, this is not always possible, for a variety of reasons:

- in many cases, accounting systems pick up the payment instruction once it is input into internal systems, but before it is paid, and switching the transaction routing would involve time-consuming 'unwinds' in the accounts;
- three to four different departments in the sending bank may need to be involved, increasing the reluctance to undertake such switches;

- the precise formatting of payment messages and the technical platform used may vary between payment systems (even where both use S.W.I.F.T.), so that some data re-entry or re-formatting may be necessary; and
- if a payment is expected in one system – perhaps because of a bilateral agreement or a specific request – the counterparty should be informed of a switch, and may object that re-routing merely transfers a liquidity problem to the receiving bank, rather than solving it.

Consequently, most banks switch payments only if they are large, since it is easier to use an inter-system swap (ISS) to make a liquidity transfer between TARGET and EURO1, than to move a large number of small payments (with the same net effect for liquidity management purposes). Most use a combination of ISS and switches, depending on the circumstances.

Over time, some of these obstacles to inter-system payment management should be removed. In particular, increased standardisation of payment message formatting (probably based on S.W.I.F.T. message types), and enhancements to schedulers, or restructuring of their links with internal accounting systems, would go a long way to allow banks using a number of different systems to operate with a single 'virtual' pool of liquidity.

For most banks, the optimal structure for a euro-scheduler was not clear at the start of the year, as there was considerable uncertainty about the way in which payment systems would perform, and how the behaviour of users would develop. The experience of the first year of euro payments will be useful to banks in modifying and fine-tuning the structure of schedulers to facilitate liquidity management. But the nature and structure of euro payment traffic is likely to see substantial further developments over the next few years, so some banks may choose to await the outcome of these changes before engaging in major modifications to existing procedures. However, for some of those banks likely to be involved in CLS (see below), enhancements to cash management systems may prove to be essential before the end of 2000, unless the amount of intraday liquidity they hold can easily (and cost-effectively) be increased.

Payment information

22 Bank treasurers managing liquidity in a real-time environment are heavily reliant on up-to-date (sometimes up-to-the-minute) and accurate information. The degree of their reliance is increased by the need to minimise the costs of liquidity management, and sometimes collateral management, cross-border and across a number of different systems. They require information on the operating status of payment systems – both of the recipient/sending bank and of the intermediate payment routing (which might range from 'fully operational' or 'running slow' to 'down temporarily' or 'down for some time') – and the status of incoming and outgoing payments (settled or queued).

Status of payment systems

23 Banks' need for timely and accurate information about the operational status of systems within TARGET was raised in the TARGET users' survey conducted by the ECB earlier this year (this survey was described in the previous *Practical Issues* and the results have since been published by the ECB), and again in a meeting to discuss payment issues organised by the ECB in September with representatives of the European banking community. The ECB proposes to hold such meetings with banks on a regular, six-monthly, basis in future.

24 The managers of each individual RTGS system can inform its members if the system is down or running slow, and can estimate recovery time; but they have no means of communicating such information directly to the members of other RTGS systems in TARGET. Some banks have observed that information about systems filters down to TARGET members at different speeds – one centre may obtain information ahead of another – and in varying forms. As a result, they find it difficult to know the true position.

25 Banks can use the timing of response messages (payment system message notifications, or PSMNs) as an indicator of whether systems are operating normally, providing the RTGS operator passes the message on to the sending bank. Once a payment message has been sent across the Interlinking, a PSMN is normally received by the sending NCB within a few minutes (the ECB estimates that the normal processing time required for a cross-border payment is 1.5-6 minutes); and the receiving NCB can pass on this information. CHAPS euro does this, and the ECB is considering whether all NCBs should do so. A substantial delay in the return of a single PSMN may indicate that there is a problem only with an individual payment message; but a slow response in general may indicate problems with the system itself. This does not, of course, provide all the information a treasurer needs – most notably, what the nature of the problem is and how long it is expected to last – but it is used as a warning signal by some banks.

26 The TARGET users' survey suggested that the ECB should consider acting as a central point for the (regularly updated) dissemination of information about the status of RTGS systems and the Interlinking, in order to provide the banking system with a demonstrably level playing field for information about system performance. The precise details of a harmonised approach are still being worked out, in discussion with the banking community. The approach is likely to make use of existing information routes, whereby each NCB will be expected to inform all other NCBs of any problems and national RTGS providers inform their own members of the latest known position. This would simplify matters for the banks which are the 'end-users' of the information; and should ensure that all RTGS providers are able to give their members timely information. But any such system must always rely on the management of the stricken RTGS to provide other NCBs with full, timely, accurate and regularly-updated information.

Status of payments

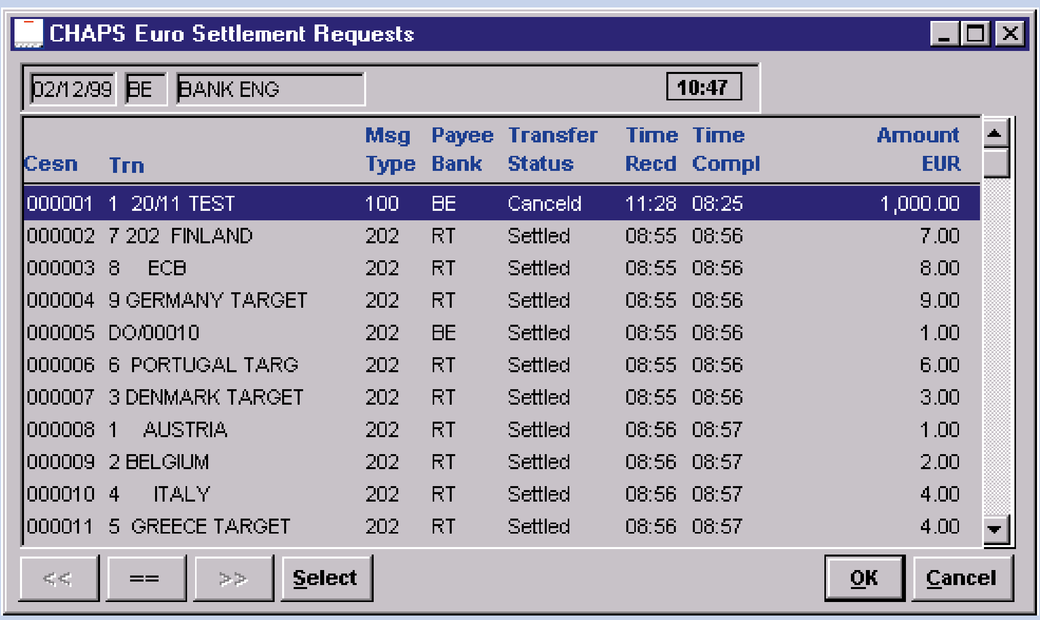
27 The decentralised nature of the TARGET system means that it cannot easily offer all the information which a bank treasurer might like to see. For instance, the CHAPS euro Enquiry Link shows outgoing payments which have been made (ie entered into the system and settled) or are queued (ie entered but not settled, awaiting sufficient funds); and it shows

ENQUIRY LINK

The CHAPS euro Enquiry Link, which provides members with real-time access to information on their accounts, was enhanced in August. The Enquiry Link provides a fast and comprehensive service, by allowing member banks to view:

- account balances;
- details of settled outgoing payments (see the screen below) including payee bank, settlement request receipt and debit time-stamps, queued outgoing payments (if there are insufficient funds to clear them), and settled incoming payments including payer bank and country, and credit time-stamp;
- for outgoing cross-border payments, payment status information from the receiving NCB including time-stamps and an indication of whether or not the payment has been successfully accepted;
- the valuation of any securities pledged to the Bank of England, and hence of available liquidity;
- the operating status of each NCB in the TARGET system - ‘open’; ‘bank holiday’; ‘queuing’ (the NCB in question has asked other NCBs to stop sending payments temporarily); and ‘closed’ (the NCB in question has not opened yet, or has closed for the day) – to the extent that information is available; and
- summary of total numbers and values of domestic and cross-border payments made and received.

The picture below is an example, using data from a test scenario, of an Enquiry Link screen for outgoing (domestic and cross-border) payments. More details for each payment are available on further screens.



CHAPS Euro Settlement Requests

02/12/99 BE BANK ENG 10:47

Cesn	Trn	Msg Type	Payee Bank	Transfer Status	Time Recd	Time Compl	Amount EUR
000001	1 20/11 TEST	100	BE	Canceld	11:28	08:25	1,000.00
000002	7 202 FINLAND	202	RT	Settled	08:55	08:56	7.00
000003	8 ECB	202	RT	Settled	08:55	08:56	8.00
000004	9 GERMANY TARGET	202	RT	Settled	08:55	08:56	9.00
000005	DO/00010	202	BE	Settled	08:55	08:56	1.00
000006	6 PORTUGAL TARG	202	RT	Settled	08:55	08:56	6.00
000007	3 DENMARK TARGET	202	RT	Settled	08:55	08:56	3.00
000008	1 AUSTRIA	202	RT	Settled	08:56	08:57	1.00
000009	2 BELGIUM	202	RT	Settled	08:56	08:57	2.00
000010	4 ITALY	202	RT	Settled	08:56	08:57	4.00
000011	5 GREECE TARGET	202	RT	Settled	08:56	08:57	4.00

<< == >> Select OK Cancel

Notes

1 In column 4, RT indicates the payment has been directed over the Interlinking; other codes indicate specific CHAPS euro members.

2 In column 6, ‘Time Recd’ indicates the time the payment instruction was received from the CHAPS euro member.

3 In column 7, ‘Time Compl’ shows the time the funds were debited from their account.

incoming payments which have been received (see Box). The response speed of such systems (typically just a few seconds in the CHAPS euro Enquiry Link), as well as their functionality, is important. But they cannot show queued payments from members of other RTGS systems within TARGET, since that information is only released across the Interlinking when the payment is actually sent. By the same token, TARGET cannot offer 'circles' functionality, which saves liquidity by identifying and settling offsetting queued payments on a bilateral or multilateral basis, since the necessary information is not available centrally.

28 The information available in individual, centralised systems can be more complete than in a decentralised model. For example, a number of euro RTGS systems show details of incoming queued payments from other members of their domestic system (CHAPS euro does not make this information available). Similarly, in EURO1, a member bank can see a record of payments sent and received; and both queued outgoing payments (if it is near or at its debit cap, or the receiving bank restricted by its credit cap), and queued incoming payments (either because it is at or near its credit cap, or because the sending bank is restricted by its debit cap). An electronic notice board allows banks to show whether they are long or short in EURO1, indicating interest in a liquidity swap. However, use of the electronic notice board is optional rather than mandatory. Most banks have now developed bilateral relationships and use them to arrange liquidity swaps, without reference to the screens. Some use the information on queues to identify suitable counterparties. The centralisation of information in EURO1 allows its management team to run a liquidity-saving 'circles' operation to ease payment flows, when it is useful to do so; this typically happens two or three times a day.

29 Correspondent accounts are generally much harder to manage, from the treasurer's perspective. They do not benefit from automated systems, and sometimes involve banks which are not familiar with SSIs. While the amounts involved tend to be much smaller than with the formal payment systems (such as TARGET and EURO1), they can cumulatively be large enough to be disruptive. As a rule there are no computerised systems giving an up-to-date picture of balances or pending transactions across these accounts. Consequently, the cut-off times for transactions to settle same-day are much earlier – perhaps 13:00-14:00 CET, as opposed to 16:00 for EURO1 and 18:00 for TARGET. Since transactions across correspondent accounts tend not to be as time-critical as, say, TARGET or EURO1 payments, this is a management issue rather than a fundamental problem.

CORRESPONDENT ACCOUNTS

Although TARGET and EURO1, the two major wholesale cross-border payment systems, account for most of the value of cross-border payments, fewer than half by volume of all cross-border payments in the euro area go through these systems. Correspondent banking still accounts for around 150,000 transactions a day. There was an expectation ahead of the introduction of the euro that a larger proportion of payment traffic would migrate to the major payment systems, and that the use of correspondent accounts would consequently undergo a dramatic decline. While there has been a significant degree of rationalisation of correspondent accounts, and there is some evidence of migration to the formal payment systems, as noted earlier, this expectation has not yet been fully borne out.

There are a number of reasons for maintaining correspondent bank accounts in the euro area.

- For any non-euro area banks which do not have direct access to one of the euro payment systems, this may be cheapest or only way of making euro payment transactions.
- While most derivatives contracts in EMU-11 currencies have by now run off, some have long maturities and may not be converted until the end of 2001.
- Most corporates have so far maintained EMU-11 currency accounts, and many do not expect to convert them to euro until the latter half of 2001.
- Accessing EMU-11 currency accounts cross-border in an effective manner often requires the use of a correspondent relationship. Not all banks have yet undertaken the system changes necessary to incorporate euro-related information (ERI) in the MT100; and, in any case, ERI usage is not standard and can cause errors. The widespread introduction next November of the new MT103 (see next Box) should clarify and help resolve this point, and may make it easier for banks to operate without EMU-11 currency accounts.
- Some banks maintained correspondent accounts in early 1999 because of uncertainty about the effectiveness of alternative payment routes. Although these now have a track record, some banks are still maintaining a limited number of correspondent relationships (often reduced to two per country: one euro and one previous EMU-11 currency) as a contingency against Y2K problems. By contrast, others have closed a number of correspondent accounts ahead of the year-end, in order to reduce the risk of Y2K problems, by simplifying their payment routing.
- In some cases, banks need a local entity to deal with paper-based transactions – for instance, providing the beneficiary with a cheque rather than an electronic balance, or dealing with trade finance matters – something the purely electronic cross-border payment systems cannot provide.
- A number of smaller banks in the euro area – around 3,000 - are not members of their local RTGS system, and so cannot access TARGET directly; these banks will have to use correspondents for any cross-border transactions.

A few of the larger banks with banking operations in several countries have chosen to use their internal systems to make cross-border transactions, where possible. This can be for reasons of cost and internal control, or to ensure that the service level offered to customers can be guaranteed. For instance, if a US corporate holds a euro account with a bank in London and needs to make a payment to a German supplier, and if the London-based bank has a branch or subsidiary in Germany, the London office might request the German branch/subsidiary to make the payment through a local payment system. Any necessary cross-border funds transfer could be handled separately, on a net basis, later on. Such payments might be classified as correspondent banking transactions, but are unlikely ever to migrate to cross-border payment systems. For some banks, with large cross-border payments traffic, such internal transfers may account for well over half of all euro payments sent – depending on customer relationships, costs and the ability of a bank's internal systems to cope with a large volume of retail payments.

In the months from March 2000 – the end of the Y2K moratorium for most banks – there is likely to be a re-evaluation and consolidation of payment relationships. But it will be some time before a clear picture emerges of the effect this will have on the volume of traffic going through the different available routes, not least as other factors will come into play during the year: the netting benefits of Repoclear and the introduction of central clearing counterparties into a number of securities settlement transactions; CLS; the closing of EMU-11 currency accounts; and the growth of cross-border retail (and wholesale commercial) transactions.

THE MT103 SINGLE CUSTOMER CREDIT TRANSFER

The MT103 is an upgrade of the MT100 (Customer Transfer message), and provides two key benefits for euro and EMU-11 currency denominated transactions.

- The EC Directive on cross-border credit transfers (97/5/EC) sets certain minimum criteria for information and transparency in customer transfers; it is proposed that certain information, particularly that relating to the 'instructed amount', will be mandatory in MT103s originating from locations in the EU.
- EMU-11 currency transactions across TARGET are more prone to errors than other messages. Information expressed in both euro and the original (EMU-11) currency (for instance, if TARGET is used to make an EMU-11 currency payment from a euro account) can be communicated using the euro-related information (ERI) mechanism in an MT100. But in some cases, the receiving bank's internal payment system may simply ignore part of the MT100 message. Communication of this information in the appropriate fields of the MT103 will reduce the risk of errors.

An STP version, MT103'+' has been designed, reducing the number of possible codes, format and field combinations. S.W.I.F.T. Board approval is expected in December. TARGET and EURO1 will both handle this version. International Bank Account Numbers (IBANs) can be used, but will not yet be validated by the S.W.I.F.T. system.

The MT103 can already be used on the basis of bilateral agreement; but from November 2000, all S.W.I.F.T. users including TARGET users must be able to receive, though not necessarily send, MT103s. MT100s will continue to be in use until 2002 at least.

Future development of payment systems

TARGET

30 The ECB *Monthly Bulletin* for November notes that 'in the short run, TARGET will have to strengthen its infrastructure in order to reduce the number of technical incidents'. This does not involve any changes to the structure of TARGET in general, or to the Interlinking process in particular. It simply means that more work needs to be done in some RTGS systems to bring performance up to the intended level. Improved performance will help

maintain confidence in TARGET and euro payment systems more generally. But it raises technical rather than policy issues.

31 A few commercial banks also face technical issues. For instance, some still need to amend internal systems to respond properly to SSIs; these may need to be amended in time to be able to receive MT103s by November 2000, though action should ideally be taken much earlier.

32 Besides the short-run need to increase the availability of those national RTGS systems which have too frequently experienced technical problems, the ECB has argued there is a longer-run need to reduce costs and extend the range of services offered to users; and that the need to plan for accession countries joining EMU raises new issues for the structure of TARGET. In particular, the ECB has suggested that there will be a need for greater harmonisation of the different RTGS systems, and for the development or introduction of new functionality, such as liquidity saving and cash management features.

33 If TARGET can be made to work well with the existing number of different RTGS systems, it could be argued that TARGET should be able to function well with an additional 12 systems (ie including those of the accession countries). However, it will be many years before all 12 accession countries are in a position to join EMU, by which time there will almost certainly have been major changes to the structure and nature of pan-European cross-border payment flows. The impact on payment systems of the individual accession countries will need to be judged against the payment structure then prevailing, rather than against the present configuration. These potential needs should not distract attention from the more immediate need to make the existing system operate as efficiently as possible.

34 A greater degree of harmonisation of standards (for instance, messaging standards) should in general be helpful. Many financial institutions operate across a number of euro-area countries, and an increasing number of companies is likely to be involved in cross-border payments traffic: further harmonisation of standards should simplify this business and reduce the incidence of errors. But even here there are caveats: payment systems need to link into the rest of the financial markets infrastructure, and there are still considerable variations across Europe in clearing and settlement systems.

35 There is also a case to be made for harmonising the software used to provide RTGS systems: modifications and upgrades can be introduced more cheaply (a point which is attractive to the banks as well as the system providers), and perhaps in a more robust manner, if there is only one version of the software to upgrade. Developments in the US Fedwire system support this line of thinking, although that is of course not a unique solution or pattern for the future of TARGET. And it is not clear which model – if any of the existing ones – would be chosen (those which have a track record of coping with large volumes in a robust and efficient manner would be the obvious starting point). The size and complexity of system required will vary from country to country: the smallest system accounts for less than 2% of the total transactions volume of the largest; and the relative importance of domestic versus cross-border, and customer versus interbank, payments varies by a factor of ten - in both cases - between systems. 'One system fits all' may not be appropriate. But uniformity of software, even if it were to be the chosen development route, would have to be a longer-term goal rather than one for the next 12-18 months.

36 Other aspects of TARGET's future development are even more uncertain. Many banks are keen on the concept of liquidity saving systems, possibly where banks hold a limited amount of acceptable collateral. Liquidity saving devices tend to be more effective when there is a central scheduler, whereby all payments are released by members to the centre, and where they queue if they cannot be made. But the various liquidity saving mechanisms currently used – in the EURO1, EAF and PNS systems, for example – are not easy to reconcile with RTGS[1]: they tend to rely on regular batched settlement whenever a bilateral or multilateral offset can be identified (a form of periodic 'circles' processing). While CHAPS euro - like some other RTGS systems in the EU - has a 'circles' (ie liquidity saving) functionality, this is only intended for exceptional use - to overcome gridlock - as it requires a temporary suspension of the normal processing to work, and has never been used in practice.

37 The possible introduction of cash management features – this may effectively mean a standardised, centrally-provided scheduler – could be achieved in a variety of ways, which have different implications. They might involve the ability to set bilateral counterparty settlement limits, queue management and prioritisation, and elements of transactions visibility. But in the same way as one software package may not suit the requirements of both high and low volume RTGS systems, the sort of cash management features required by a major pan-European payment specialist bank, with membership of several RTGS systems as well as the non-RTGS systems, will be very different to those of a small regional institution with negligible cross-border traffic and single system membership. The former should not be constrained by the latter's limited requirements, nor the latter made to pay for the former's sophistication. Moreover, any cash management functionality provided by TARGET would be restricted to the TARGET system.

38 Most CHAPS euro members already have cash management systems (often in the form of a sophisticated scheduler), which provide them with the functionality, across several systems, that they require. The one function which banks cannot develop in-house and that does not exist in TARGET is incoming payment queue visibility. For TARGET to provide this would require not just systems harmonisation, but a degree of systems centralisation. That would no longer be a question of enhancement, but of fundamental redesign and rebuild. In any case, some RTGS providers remain reluctant to provide incoming payment queue visibility, on the grounds that some banks might give value on this basis, before the funds are actually transferred.

RTGS AND LIQUIDITY SAVING

In general, liquidity saving mechanisms tend to rely on: (i) good behaviour by participants (paying early, perhaps via agreed routes); (ii) a system's ability to identify and deal with offsetting queued transactions; and (iii) a high volume of transactions. The first is, of course, not system-specific, except to the extent that some systems have particular throughput targets and may be able to monitor adherence to them. The second two imply a 'closed' system, in that payments can only be sent to or received from other members of the same liquidity saving system. For example, members of EURO1, EAF and PNS can only

1 Defined in a report endorsed by the EU Central Bank Governors in November 1993 as 'a funds transfer system in which payment orders are processed one by one in real-time, and which provides for immediate settlement of all payments provided that there are enough funds or overdraft facilities on the issuer account with the settlement agent'.

send payments directly to other members of those systems. By contrast, TARGET gives users of one RTGS system access to all other members of TARGET.

In September, the Bundesbank announced plans to introduce 'RTGS ^{plus}', as 'a gross system with liquidity saving elements'. This would allow users to designate a payment as 'express', in which case it would be executed as soon as funds were available; or as 'liquidity saving', when it would be subject to counterparty or other limits and might be queued until offsetting incoming payments could be identified. The intention would be to combine features of ELS and EAF, within a S.W.I.F.T. FIN-based system; but it is not yet clear whether the liquidity saving route would meet the November 1993 definition of RTGS; the existing liquidity saving EAF system does not.

From a user's point of view, RTGS ^{plus} may be similar in practice to membership of an existing RTGS and a liquidity saving system, together with a multi-system scheduler: ie the existing position, for instance, of most UK banks which are members of CHAPS euro and EURO1. There may be a trade-off, at least for the present, between an integrated system (the concept of RTGS ^{plus}) on the one hand, and customisation and breadth of coverage on the other (provided, for instance, by a custom built multi-system scheduler, and membership of both an RTGS and a pan-European liquidity saving system).

CHAPS is currently exploring the relationship between RTGS and liquidity saving as part of its debate on future development.

CLSB and central clearing counterparties

39 The CLSB (Continuous Linked Settlement Bank) is being developed by a group of major foreign exchange trading institutions to provide a service eliminating settlement risk in certain foreign exchange payment transactions (see Box). A by-product of this process is that some existing payment traffic will have to migrate from the non-RTGS systems (EURO1, EAF, PNS) into TARGET, as CLSB requires RTGS payment in central bank funds; and the overall number of foreign exchange related transactions is likely to fall because of the net basis of CLSB funding. It is not clear by how much overall payments traffic might fall. Some have suggested 15-30% over time, by both value and by volume, in the non-RTGS systems; and - partly on the basis of the evident impact this year of US public holidays on TARGET traffic - a similar or possibly greater fall in TARGET. The reduction in settlement risk may encourage an increase in foreign exchange trading: this is unlikely to offset the impact of net funding on the value or the volume of associated payment flows.

40 Repoclear was introduced by LCH in September to allow netting of certain government security repo contracts. This service is to be developed, and expanded to include cash transactions in conjunction with GSCC and Euroclear, under the newly-created and jointly-owned European Securities Clearing Corporation (ESCC). The introduction of a central clearing counterparty allows for a reduction in the cash flows associated with a given level of transactions; as with CLS, these savings could be substantial once critical mass is attained.

41 A similar cash saving may accrue from the planned introduction of central clearing counterparties in a number of securities settlement systems – for instance as part of the alliance of European stock exchanges, and links between Euroclear, Clearnet and LCH. Again, this should allow for the netting of the cash leg of the transactions.

CONTINUOUS LINKED SETTLEMENT (CLS)

CLS, which is designed to eliminate settlement risk in certain foreign exchange transactions, is scheduled to commence operations in the first half of 2001. Initially, CLS will involve a limited number of banks and five major currencies, including the euro (the others are US dollar, Canadian dollar, sterling and the Swiss franc; the Japanese yen and Australian dollar will be added soon after). A rapid expansion of bank membership of CLS will be encouraged during its first year of operation. CLS envisages two tiers of membership: settlement members (SMs) and user members (UMs), both of which can provide services to third party customers and submit settlement instructions to the CLSB – a limited-purpose, US-incorporated, bank through which transactions are to be settled and funded. Settlement risk in relevant currency trades is eliminated by simultaneously settling the two currency legs of a transaction across SMs' accounts on the books of the CLSB during a time period when the relevant RTGS systems are both open, thus providing payment-versus-payment (PvP). Transactions will be settled on a continuous, gross basis, normally from 7:00 to 9:00 CET.

SMs will have only to fund their net short currency positions, according to a precise schedule, and will receive funding of their net long positions by currency as inflows are received by CLSB, from 7:00 to 12:00 CET. The pay-in schedule will be provided each day by CLSB, and will allow SMs to run debit balances in individual currencies, subject to certain limits, as long as their overall position with the CLSB is long. UMs will have to choose one or more SMs across whose CLSB account(s) the UMs' trades will settle. SMs are expected to have a zero overnight balance on their CLSB account.

Modelling of payment flows indicates that CLS will make additional demands on intraday liquidity management both in the early stages, until critical mass is achieved, and because liquidity may be split between CLS and non-CLS trades. The advent of CLS also raises a number of issues for settlement banks, their nostro agents and NCBs involved in the euro area.

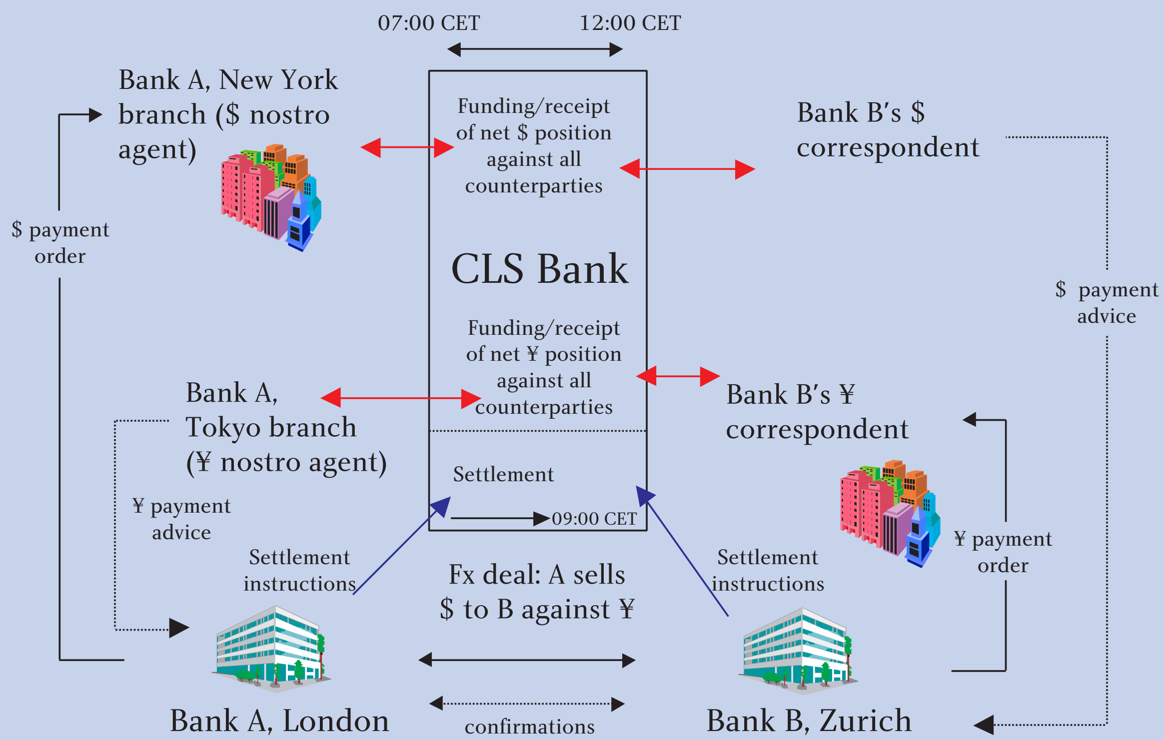
- Settlement banks and their nostro agents will need to ensure that they have sufficient funds available in each currency to meet the requirements of the funding schedule on time. This will call for stricter management of flows than currently required for most RT payments, requiring a combination of payment schedulers that allow for prioritisation of funds; very rapid access to intraday liquidity facilities; and/or more intraday liquidity (which in turn might require additional suitable collateral).
- It is clearly desirable that CLS should not adversely affect the performance of TARGET for non-CLS payments. Settlement banks and their euro nostro agents will have to work actively between now and the CLS launch to minimise any impact.

- (Tested) contingency arrangements will need to cover a late start or systems failure in a settlement bank, its nostro agent or the TARGET systems or Interlinking needed to transfer required payments to the appropriate ECB account.
- Payment volumes relating to foreign exchange transactions will reduce over time.

At the margin, the CLS process is likely to lead to changes in the use of correspondent bank accounts. SMs will have to agree the timed payment service with their nostro agent; UMs will have to choose SMs, and agree funding arrangements with one or more of them; and third parties likewise with their UMs or SMs. SMs in turn will need to take account of their net cash flows with the CLSB, UMs and third parties.

Unlike correspondent banking today, CLS will inevitably see a growth in multicurrency relationships.

Banks A and B are both Settlement Members with a control account in CLSB;
Bank A uses affiliates as nostro agents, Bank B uses other banks



Cross-border retail traffic

42 Both the ECB and the European Commission have indicated recently their desire to see improvements made in the efficiency and speed, together with a reduction in cost, of cross-border retail payments in the euro area by 1 January 2002. The ECB has drawn up seven objectives for cross-border retail payments in the euro area (see ECB report, *Improving Cross-Border Retail Payment Services in the Euro Area – the Eurosystem's View*, dated September). Some market participants believe that the development of e-commerce could give rise to a substantial increase in cross-border retail flows in the near future.

43 Some means of payment – credit cards (and increasingly debit cards) and the use of ATMs (facilitating the use of cash) – are already well developed and widely used cross-border. Others, such as direct debits and electronic credits, are hampered by differences in national legislation and lack of standardisation in account structures and messaging formats. These problems should be simplified by the adoption of two new standards, IBANs and IPIs (International Bank Account Numbers, and International Payment Instructions, developed by the European Committee for Banking Standards), over the next couple of years.

44 The ECB sees its role as a catalyst in promoting the development of services which should help the introduction of the euro to achieve its full benefits, rather than as a service provider itself. In some areas – such as reducing or eliminating the statistical reporting burden placed on banks making cross-border payments within the euro area – the ECB may play a more active role. But on the whole, it is up to the banking community to develop means of cross-border payment to meet potential consumer demand, although actual demand to date has been minimal. In this regard, EBA announced in September plans to develop and broaden its EURO1 payment system to facilitate its use for cross-border low-value payments, the new facility to be available before end-2000; and the Worldwide Automated Transaction Clearing House (WATCH), intended to be a low-cost, batch-oriented cross-border ACH-type payments system, aims to launch by July 2002 with six to eight currencies, including euro and sterling.

B TRADING, CLEARING AND SETTLEMENT SYSTEMS

Factors driving the changes

45 During the past year, there have been a number of potentially far-reaching proposals for changes in the European trading, clearing and settlement environment. Market infrastructure providers have announced a wide range of plans involving new ownership structures, further integration of their systems, either through the development of links or through cross-border alliances, upgrades to their services and the technical processes which support them, and broadening of their business focus to encompass new markets.

46 These developments come in response to greater integration in the markets they serve, both in Europe following the introduction of the euro and more widely, with growing cross-border investment flows. Cross-border trading and use of collateral are also increasing the demand for cross-border settlement and custody.

47 Another important driver is technology. Technological advance has permitted increased automation of the trading and settlement process, facilitating broader access to increasingly global markets; 'straight-through-processing' of transactions (with the minimum of human intervention from trading through to settlement); and shorter settlement cycles.

48 Technology has also helped to lower the entry barriers to markets. This is particularly important for exchanges, which are increasingly facing competition from newcomers providing comparable services (eg ECNs). These competitors are often supported by the exchanges' principal users. Exchanges are responding to these threats by expanding the range of markets served and enhancing the service they provide, in many cases changing

their governance structure to enable them to adapt more easily. A combination of consolidation and competition has likewise brought the exchanges' principal customers under renewed pressure to improve efficiency and reduce costs.

49 Longer-term changes in the legal and regulatory environment – notably the development of the Single European Market - have also encouraged the integration of markets that previously had a predominantly domestic focus. The Settlement Finality Directive, due to be implemented in all EU countries before the end of 1999, goes some way to addressing disparities between EU countries' securities laws and conflicts of law rules, and may be the first step towards a common body of securities laws across the EU. The European Commission recently announced a programme of action which is intended to go further in removing the remaining regulatory and legal constraints on the provision of cross-border services across the EU.

Responses by system providers

50 Faced with the challenge of an increasingly integrated, competitive international environment, Europe's existing market infrastructure providers have reacted in a number of innovative ways.

- Some exchanges have chosen to change their structure of governance, mostly opting for a form of demutualisation that falls short in the first instance of full public listing.
- Most have sought to adapt or upgrade their services. For instance, derivatives exchanges that have traditionally traded on a floor have introduced screen-trading facilities. Securities settlement systems are developing delivery-versus-payment.
- Many have entered into alliances, both with their direct counterparts in other countries (ie horizontal integration) and with other providers of related services in their own country (ie vertical integration). Providers may enter into such alliances for a wide variety of reasons, and the alliances take different forms. The simplest are no more than links intended to allow participants in one system access to securities held in the other, and are typically undertaken to open up direct competition for business in the same securities. Links between clearing houses offer value-added services such as cross-margining to customers with global portfolios. At the other end of the spectrum, some alliances envisage cross-membership agreements, common rules and technical platforms, or indeed full merger.
- Several have moved into new markets. Clearing houses have sought to encompass instruments predominantly traded over-the-counter. The distinction between the services provided by national CSDs, ICSDs and custodian banks has begun to blur. Similarly, settlement of bonds and equities is increasingly converging.

Changes in governance

Demutualisation of the London Stock Exchange

51 The London Stock Exchange (LSE) announced in July that it intended to move away from its current mutual ownership structure, subject to approval from three-quarters of its

members. Although there are no plans for full public flotation at this stage, shares will become transferable, ending the traditional link between ownership and usage.

52 At the same time, the LSE has given up some of its current regulatory functions. On 4 October, the Chancellor announced that the role of the Competent Authority for Listing would be transferred from the LSE to the FSA. Subject to the relevant legislation, this responsibility involves making the Listing Rules, which set out the requirements that issuers of securities to the UK primary markets need to meet, and policing compliance with them. The transfer of responsibilities will be made through amendments to the Financial Services and Markets Bill, which is expected to be enacted in the spring of 2000.

Demutualisation of Deutsche Börse

53 Deutsche Börse, the German stock exchange, may convert into a public listed company, and seek to attract the listings of Europe's leading blue-chip companies. Early indications suggest that this could involve a change of name to 'Euro-board', and an initial public offering on the new Euro-board exchange. The proceeds of sale would be used to upgrade the exchange's trading and settlement technology.

Other demutualisation plans

54 Several European stock exchanges have moved away from mutual status in recent years, including Stockholm (1993), Helsinki (1995), Copenhagen (1996), Amsterdam and Milan (both 1997). Stockholm is the only exchange in Europe to have become a fully listed company, although (in addition to Deutsche Börse) Paris, Amsterdam and EASDAQ have stated their intentions to do so in due course.

Restructuring of ParisBourse SBF

55 On 27 May, the shareholders of SBF Group, the operator of the Paris Stock Exchange, voted to restructure the Group's activities, providing a high level of vertical integration in the French market. With effect from 1 June, the SBF Group has been known as ParisBourse SBF SA. The main exchanges – SBF, MATIF SA, MONEP SA and La Société du Nouveau Marché – are now operated by a single entity, although each market retains its own regulations, identity and membership structures. A subsidiary, Clearnet SBF SA, which incorporates the clearing facilities of SBF, MATIF SA and the Banque Centrale de Compensation (BCC) provides central counterparty clearing facilities for a range of exchange-traded and over-the-counter transactions. A further subsidiary, Euronext SBF SA, will centralise the Group's IT development and facilities management, as well as continuing to provide commercial software and technology services to other infrastructure providers. Sicovam, the securities settlement system, is part-owned by ParisBourse, but not formally part of the Group.

Euroclear

56 On 1 September, Euroclear announced that a new market-owned bank will be formed to take over the operating and banking roles currently performed by JP Morgan, which launched Euroclear in December 1968, and has since operated the system under contract after selling Euroclear to its users in 1972. The new bank will be based in Brussels, with

approximately €1 billion in capital, and with additional financial backing from major banks to support its growth. The Board of Directors and management team will continue in their existing form. The new bank is expected to be in operation in 12 to 18 months' time, pending shareholder and regulatory approval.

Service enhancements

LIFFE CONNECT

57 During August and September, LIFFE's short-term interest rate (STIR) contracts migrated onto its new electronic trading system, CONNECT. (Bond and index derivatives were introduced onto CONNECT in April and May.) STIR contracts account for around 70% of LIFFE's total volumes. The Euroswiss futures contract was introduced on 23 August, short sterling on 6 September, and the euro LIBOR and the key EURIBOR futures on 20 September. All of these started after-hours trading on CONNECT on 23 August.

58 Initially, contracts could be traded simultaneously by open outcry and on CONNECT, to allow the market to decide its preferred trading method for each contract. The Euroswiss contract very quickly migrated wholly to screen. EURIBOR and short sterling contracts took longer to do so, probably reflecting the greater importance of the 'locals' to volume in these contracts: by end-October, around two-thirds of EURIBOR trading was on screen, but only around one-third of short sterling trading. On 25 October, however, LIFFE announced that all STIR futures pits would be closed with effect from 22 November. Following this announcement, all remaining business rapidly migrated to CONNECT.

Delivery-versus-payment in CREST

59 The Bank of England has been working with CRESTCo, APACS, and industry participants to upgrade the form of delivery-versus-payment (DvP) currently offered in CREST, the UK's securities settlement system. Currently, CREST (in common with the Central Gilts Office, for which CRESTCo took over responsibility and which will be fully integrated into CREST during 2000) operates an assured payment mechanism, whereby securities are exchanged real-time against a claim on one of a small number of high credit quality 'settlement banks' at the point of settlement. Final settlement of funds between settlement banks (across accounts at the Bank of England) does not occur until the end of the day. Whilst this gives CREST members effective DvP, it means that there remains the possibility that a settlement bank will fail to make payments when due at the end of day, and that its counterparties (or their customers) will thereby incur loss (settlement would not be unwound). Such an event has a very low probability, but the size of the sums at risk (turnover in CREST and CGO can approach £200 billion a day) mean that such an event would have a serious impact. The introduction of 'full' DvP, with securities settlement in CREST simultaneous with the cash leg settling in central bank money, will eliminate that risk.

60 Agreement is close on the high level design of the DvP mechanism. The Bank of England is currently working with CRESTCo on the detailed design. Design and development work will continue throughout 2000 and 2001. The intention is to introduce full DvP during 2001.

61 In a separate development, on 23 November, CRESTCo announced a proposal, in conjunction with the Bank of England, APACS and the LSE, that the standard settlement cycle for the UK's equity and corporate debt markets should be reduced from five days (T+5) to three (T+3). This would take effect from February 2001. Such a move is intended to reduce counterparty credit (replacement cost) risk in the market, without resulting in a higher rate of settlement failure. A longer-term objective is to reduce the cycle further, to T+1, possibly in 2003. Market participants have been invited to comment on the proposals.

Continuous settlement in Euroclear and Cedelbank

62 In recent months, both of the ICSDs, Euroclear and Cedelbank, have introduced forms of continuous, or real-time, settlement. Both previously operated daytime and overnight batch processing cycles. The regime introduced by Cedelbank on 5 July involves processing, at frequent intervals (roughly hourly), all eligible outstanding settlement instructions, as well as new transactions and domestic market confirmations received from depository banks since the preceding processing cycle. The overnight batch processing cycle has not been altered. Euroclear's new real-time platform, launched on 27 September, settles transactions once trades are matched between two of its counterparties, or between a counterparty and a local market member. Euroclear's real-time processing is optional to participants, and, as with Cedelbank, most processing continues to occur during the unaltered overnight cycle.

63 The ability to settle in real-time offers significant increases in settlement efficiency and reductions in risk, with fewer delays and greater certainty in the timing of settlement, the ability to repair failed trades in real-time and to settle same-day exchanges and re-exchanges of value. Looking forward, however, the most significant gains may be for cross-border transactions, which require transfers between systems. Linking two systems, one or both of which operate on a batch cycle, can introduce delay, and potentially risk, into the settlement process. (CREST has operated on a real-time basis since its inception in 1996.)

Alliances – national and international

European stock exchange alliance

64 The eight European stock exchanges (Amsterdam, Brussels, Frankfurt, London, Madrid, Milan, Paris and Zurich) involved in discussions to form a pan-European alliance have announced plans to launch a 'virtual' market, through the creation of a common electronic link and harmonisation of rules and practices. Brokers will have access to around 300 blue-chip stocks, using an interface with a common application process. The model is based on continuous electronic order-driven trading, with opening and closing auctions and optional intraday auctions. The exchanges will retain their current clearing practices, with a nominated central clearing counterparty for each security, probably on a national basis. Information on settlement processes and planned pan-European benchmark indices has not yet been released. If Deutsche Börse becomes a public listed company, this would bear on the proposals for the European stock exchange alliance.

65 In June, the LSE released the results of its market consultation exercise on market harmonisation with the Deutsche Börse and the development of the order book, which were implemented on 20 September. The LSE announced that the opening of the market would

be moved forward an hour, so that trading hours of 08:00 to 16:30 London time would be common to both SETS and Xetra. In addition, the maximum order size on the order book was removed and the length of order validity was increased to 90 days.

LIFFE and CME strategic partnership

66 On 5 August, LIFFE and the Chicago Mercantile Exchange (CME) announced that they would form a strategic partnership. Beginning in early 2000, the alliance will have four key elements.

- LIFFE members will have access to products traded on the CME's GLOBEX 2, and CME members will have access to products traded on CONNECT, via a link between the telecommunications networks of the two exchanges. These products will include both exchanges' flagship EURIBOR and Eurodollar contracts, as well as all of LIFFE's money market and bond contracts, and the CME's 'E-mini' products.
- A new spread trading facility will be introduced on CONNECT between key Eurodollar and EURIBOR futures contracts. This will be simultaneous, to remove legging risk, but will then be split into its constituent parts for clearing.
- Margin offsets will be available for existing open interest and split trades executed as part of the spread trading. They will be applied initially only to proprietary business; customer business is intended to be added in due course.
- The exchanges will develop a for-profit joint venture, to develop new products and services together. They intend that the new venture should also involve end-users, other exchanges, broker-dealers and technology providers, although details of its precise plans have not yet been released.

Eurex's alliances with HEX and CBOT

67 Eurex, the German-Swiss derivatives exchange, has announced in recent months two alliances: with HEX, the Finnish derivatives exchange; and with the Chicago Board of Trade (CBOT). The alliance between Eurex and HEX became fully operational on 15 October, although the products that are migrating will not be delisted from HEX until the end of the year. Some of the most important HEX products are now traded on Eurex (such as stock options on some of the leading Finnish equities and futures and options on the FOX and Dow Jones Nordic STOXX 30SM indices). In addition, HEX members have been granted non-clearing membership of Eurex. Settlement of underlying equities will take place across a newly-created link between Deutsche Börse Clearing and APK, the Finnish system.

68 Eurex's alliance with CBOT involves the creation of a single trading platform and a new joint venture company to operate it. The two exchanges will share software development and deploy a single global network and member support organisation. The legal agreements to cement the alliance were signed on 1 October.

GLOBEX Alliance

69 In September, the first three partners of the GLOBEX Alliance – ParisBourse SBF SA, the Singapore International Monetary Exchange (SIMEX) and CME – were joined by two new partners: Brazil's Bolsa de Mercadorias & Futuros and Canada's Montreal Exchange.

70 A separate Euro GLOBEX Alliance has been formed between MEFF (the Spanish derivatives exchange), ParisBourse SBF SA, BDP (the Portuguese derivatives exchange) and MIF SpA (the Italian derivatives exchange). Unlike the GLOBEX Alliance, Euro GLOBEX operates on the principle of cross-exchange access, which allows members of one exchange to trade the products of another, rather than the creation of a single trading platform.

Securities settlement

71 The June *Practical Issues* discussed the various models proposed for the cross-border consolidation of the European securities settlement infrastructure. These include Euroclear's proposal for a single pan-European hub to settle cross-border transactions for global intermediaries, with spokes (based on existing national CSDs) settling domestic transactions in local markets, but linked through the hub. Another such proposal is the European Central Securities Depositories Association's standard model for bilateral links between its members.

72 The most high-profile initiative was Cedelbank's plan to merge with Deutsche Börse Clearing to create New Cedel International (NCI), to be known as the 'European Clearing House'. Since the announcement of this proposal in May, there have been a number of developments, and the formal merger of Cedel International and Deutsche Börse Clearing took place on 2 November. Details of the planned structure are not yet determined.

73 NCI invited all domestic CSDs in Europe, and Euroclear, to join. At the time of the original announcement, Sicovam, the French CSD, signed a memorandum of understanding with Cedelbank and DBC to join the merged entity. On 10 September, Monte Titoli, the Italian CSD, announced that it planned to set up a working group to examine the possibility of signing a similar memorandum of understanding, although at the same time it announced parallel plans to explore future options with Euroclear.

74 However, on 23 November, Sicovam announced that it no longer plans to join NCI. Instead, Sicovam, Clearnet and Euroclear plan to create an alliance to provide pan-European clearing and settlement services. A definitive agreement is expected in April 2000. Two new entities will be created, one governing clearance and settlement and the other governing netting of equity transactions. Participants will be able to choose, from a single entry point, whether to settle in central bank money (across the books of Sicovam) or in commercial bank money (Euroclear). Like NCI, Euroclear, Sicovam and Clearnet envisage that their partnership will extend to other CSDs.

75 In response to proposals such as these, an *ad hoc* group of major users of the clearing and settlement infrastructure in Europe met to discuss the principles on which they believed that any future structure should be based. This European Securities Users' Industry Group (ESUIG) said that it favoured a single, integrated process in Europe for the clearing and settlement of debt and equity transactions, and that it was not prepared to pay, directly or indirectly, for duplicate developments. The ESUIG further argued that, since competition in a world of a single integrated process could be limited, clearing and settlement should have a separate governance process from trading or payments, and that the process should largely be owned and directed by securities industry users.

76 Separately, on 18 October, CREST announced agreement for a link with its US counterpart, the Depository Trust and Clearing Corporation. This will enable UK and Irish members of CREST to settle, through their existing CREST connections, transactions in NASDAQ securities and the top US equities contained in the S&P500. The link will become operative in March 2000, and there will be an opportunity to expand its scope at a later date. CREST already has similar operational links with Necigef (the Dutch CSD), SegaInterSettle (the Swiss CSD), VPC (the Swedish CSD) and Deutsche Börse Clearing (through Dresdner Bank as a sub-custodian). Since 1 November, Euroclear has also had a link to CREST, through which its participants can settle UK and Irish equities. On 16 November, CREST revised its custody charges for foreign securities. Tariffs, previously 2-5 basis points, are now set at a flat rate of 1 basis point for Swiss securities, 1.5 basis points for German securities, and will be 1 basis point for US securities when the link with DTCC goes live.

New markets

NASDAQ

77 The National Association of Securities Dealers Inc (NASD), which operates NASDAQ, announced on 5 November that it intends to create NASDAQ-Europe, a pan-European stock market targeting high-growth companies. Due to start in the fourth quarter of 2000, it is proposed to link to NASDAQ and NASDAQ-Japan (which was announced in June) to provide global trading. NASDAQ-Europe plans to operate as a central limit order book. Some form of central counterparty will be offered, and settlement will be based on 'existing European market standards'.

78 NASDAQ-Europe will be a joint venture between Softbank Corp. of Japan, News Corporation's venture capital fund, epartners, and Vivendi's venture capital fund, Viventures Capital. The exchange will be a for-profit company based in London and intends to apply to be regulated in the UK as a Recognised Investment Exchange, able to use the Investment Services Directive 'passport' to list and trade on a pan-European basis.

techMARK

79 The LSE has launched a new market specifically for 'technology companies'[2]. techMARK went live on 4 November, with 181 technology companies already listed on the main market, ranging from the FTSE 100 to the FTSE Fledgling. But in addition, the LSE is developing new listing rules to allow growth companies, which do not have the three-year trading history currently required, to list on techMARK, given a minimum capitalisation, flotation value, and reporting frequency. FTSE International has developed techMARK indices, which will allow comparison of each company's performance against the technology market as a whole.

2 The LSE defines a 'technology' company as one whose business growth and success is dependent on the development of one or more technologies or on the development of products or services which require significant technological innovation.

Tradepoint

80 Tradepoint, the London-based electronic stock exchange, has announced plans to expand its coverage of European equities. The exchange intends to offer a single trading platform for pan-European equities. Trading rules will be the same for all stocks, and a central counterparty will be available for risk management, with netting facilities. Since its focus will be on the institutional market, Tradepoint expects to trade only about 240 European large-capitalisation stocks (ie the constituents of indices), although trade reporting may be allowed in up to 8,000 other stocks.

New electronic trading facilities

81 Across markets, there is a range of new trading systems. Electronic communications networks (ECNs) are functionally similar to exchanges, competing with many of their trading services. ECNs provide facilities to bring together buyers and sellers, with particular criteria for how the trades should be executed. In practice, they operate electronically and have tended to operate in parallel to (and often as members of) existing exchanges. Their development has been driven by advances in computing capacity and falling costs, and has been affected by the form of regulation under which they operate. (ECNs are typically regulated as inter-dealer brokers.) Beyond these common factors, the term 'ECN' covers a relatively diverse range of systems.

82 In the US, ECNs have a significant market share (around 30% of NASDAQ volumes). But they have yet to take off in the UK and the rest of Europe. The only two ECNs with a significant market presence in the UK are Instinet and POSIT. Instinet, which is owned by Reuters and was founded in 1969, operates a continuous auction, with trades occurring whenever a buy and sell order match. POSIT, on the other hand, is a crossing network, operating periodic auctions, in which there is no independent price formation. Launched in the US in 1987, a European version of POSIT opened in November 1998.

Developments in bond and bond repo trading

83 The June *Practical Issues* reported that three service providers (the Swiss Stock Exchange (SWX), MTS and ERX) had developed or were developing electronic trading platforms for European government bond repos, which had previously been traded over-the-counter in Europe. In June, SWX launched its electronic market, known as Repo SWX, for Swiss franc repos, benchmark euro-area government bonds and UK gilts. German Government securities are routed directly to the London Clearing House for clearing and netting in RepoClear.

84 MTS, the Italian company that launched a new service, EuroMTS, earlier this year for cash trades in benchmark euro-area government bonds, has announced extensions to its services. In September, EuroMTS began trading Austrian, Dutch and Belgian benchmark bonds, to complement the existing bunds, OATs and Italian bonds (BTPs). In addition, MTS established two further national franchises, for the Netherlands and France. MTS Amsterdam, which began on 1 September, lists all outstanding Dutch Government bonds and bills. MTS France has been established jointly with ParisBourse SBF to provide a screen-based secondary market for French Government debt. A central clearing service is to be provided by Clearnet, which is also working with MTS to provide clearing of Italian Government securities.

85 In October, EuroMTS introduced repo functionality for listed OATs, bunds and BTPs and in due course expect to extend this further to include all of those bonds traded in the cash market. EuroMTS has also launched a joint initiative with the London Clearing House's RepoClear, which will act as central counterparty and facilitate anonymous trading. The third potential repo platform, ERX, is no longer being developed.

Developments in repo clearing

86 On 20 August, the London Clearing House (LCH) launched RepoClear, its central counterparty clearing service for government bond repo transactions. Central counterparties aim to reduce (and certainly to standardise) counterparty credit risk, and typically reduce participants' balance-sheet size, through multilateral netting. RepoClear currently provides clearing for German Government bond (Bund) repo, and LCH intends to introduce clearing of Belgian Government bonds later this year, and Italian BTPs and UK gilts early next year. LCH's default fund has been extended by up to £50 million to cover RepoClear. LCH plans to offer cross-margining with swaps and futures. The original eight members were joined in October by IBJ International, Merrill Lynch International and Nomura International. In the first seven weeks of its operation, RepoClear cleared a total value of €103 billion, with an average trade size of €57 million.

87 Other infrastructure providers are currently involved in clearing for the European repo market. Clearnet clears OAT and Bund repos. Euroclear, and the US Government bond repo netting provider, GSCC, also announced a joint venture ('European Securities Clearing Corporation'). But on 4 November LCH, GSCC and Euroclear announced an alternative structure for ESCC, in which each of the three partners would take an equal stake. ESCC will provide netting facilities for European government bond cash and repo transactions, with RepoClear as central counterparty. Euroclear will provide collateral management services, as well as trade capture and matching. GSCC and LCH will offer cross-margining for members of both systems. ESCC has been chosen by the International Securities Market Association (ISMA) to clear trades on COREDEAL, the screen-based dealing platform for Eurobonds that ISMA plans to introduce from early 2000.

SwapClear

88 LCH's other central counterparty service, for the over-the-counter interbank swaps market, was launched on 24 September. In the first instance, it is clearing plain vanilla interest rate swaps of up to ten years' maturity and forward rate agreements of up to one year's maturity, denominated in sterling, euro, yen and dollars. SwapClear is covered by an increase in LCH's default fund of £100 million. Margin offsets are available with LIFFE STIR and bond contracts, and in due course with transactions cleared through RepoClear.

Central counterparties for equities

89 The LSE announced in a letter to members in October that it planned to establish a central counterparty using the services of LCH and CREST, with which it has signed a memorandum of understanding. The central counterparty will provide exposure netting, but not yet multilateral settlement netting. An industry working party has been set up to address further issues such as risk management and the distribution of costs. The LSE envisages

that the central counterparty will in the first instance be used for domestic equity transactions only.

Some emerging trends?

90 Infrastructure providers must meet the needs of their users. Market participants want an infrastructure that is safe, reliable, cost-efficient and that supports their own businesses. They also seem to want flexibility: greater freedom to choose where they trade, clear and settle transactions, according to their own preferences and pattern of business. Infrastructure providers will need to offer this flexibility, perhaps by building efficient links, both horizontally and vertically. Market participants seem unlikely to want to be tied into rigid trading, clearing and settlement solutions.

91 *Trading* Investors want pan-European markets for the trading of the most liquid government and possibly other bonds (in the cash and repo markets), blue-chip equities and benchmark derivatives. These markets seem likely to be electronic order books rather than dealer markets. There could be a tension between on the one hand the desire for choice and competition, with new technologies increasingly being used to offer more attractive trading platforms at a lower cost, and on the other the desire to avoid the fragmentation of liquidity this can involve. It is also unclear whether the markets will be provided by:

- national exchanges that co-operate to offer harmonised conventions and systems across Europe, with common access;
- national exchanges that compete or merge to offer pan-European markets; or
- new entrants, whether overseas exchanges, the large international banks and broker-dealers themselves, or others.

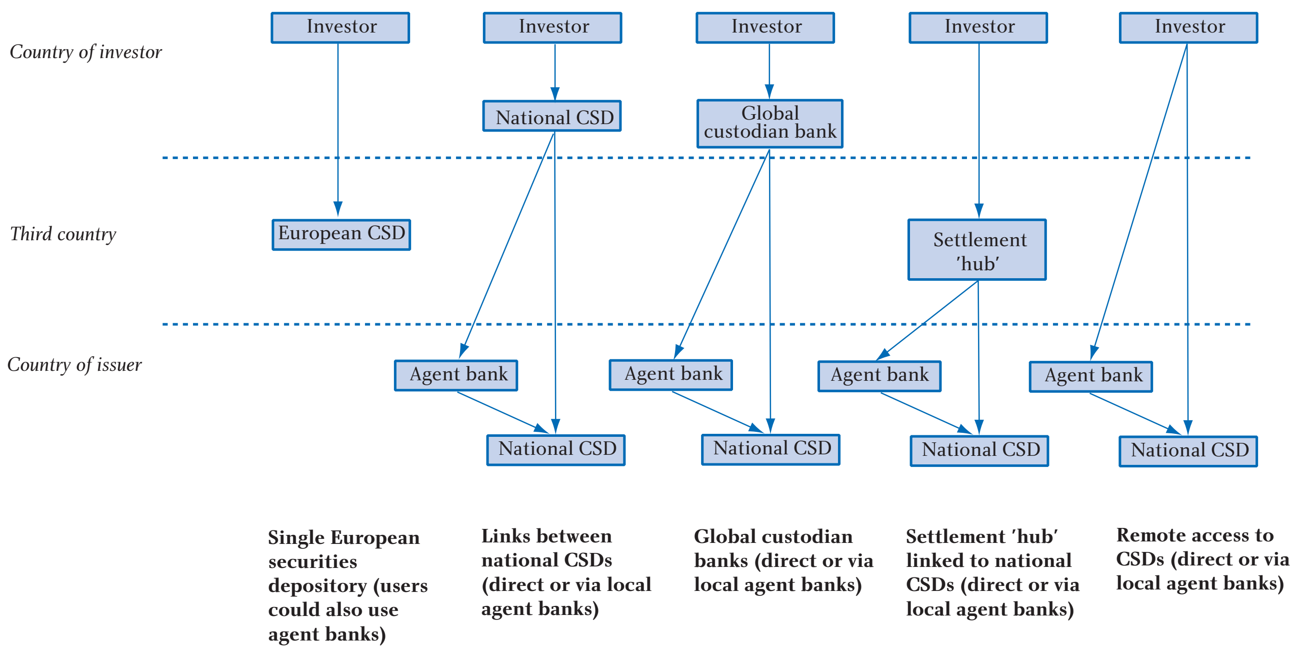
92 *Clearing* The use of central counterparty clearing houses in financial markets seems likely to increase. The large market participants do not want to retain the counterparty exposures that arise from their trading activities. Further consolidation of market participants will only add to the level of counterparty exposures, which are concentrated accordingly among the remaining firms. The desire to maximise the benefits of exposure netting, and possibly settlement netting, may mean that market participants seek to have a single central counterparty for a particular market.

93 *Settlement* Market participants (for instance, the ESUIG) are seeking a 'single settlement process' in Europe and possibly beyond. This does not necessarily mean settlement occurs in the same system. It might be achieved through effective links between systems. Chart S illustrates some possible models; the most likely outcome is probably a hybrid. It should mean that overseas investors are able to settle transactions as efficiently as domestic investors, at no greater risk and ideally at no greater cost. A single process also requires access to systems to be open. Market users should be able to decide which service provider they use to settle their transactions, and depositories should give access on an open and fair basis to any reputable provider (whether another CSD, ICSD or a custodian bank) that wishes to offer settlement of the securities they hold.

94 Central banks, regulators and market participants require settlement to be safe. This points towards real-time delivery-versus-payment, and appropriate access to central bank

accounts for the completion of the payment leg. They also need to ensure that operational risk is controlled, both in the normal working of a system and in any transition period while new services are developed.

POSSIBLE MODELS FOR CROSS-BORDER SETTLEMENT — CHART S



C BUSINESS DAYS

31 December 1999 and 3 January 2000

95 The ECB decided in March that, in the light of the Y2K changeover, the TARGET system will be closed on Friday, 31 December. This includes both the Interlinking mechanism and all domestic euro RTGS systems. Subsequently, the EU Council of Ministers announced on 19 April that: 'Member States should ensure by appropriate means that the performance of any contractual obligations of credit institutions or other agents in the financial markets at least for the transactions in euro shall neither, as on a public holiday, become due nor enforceable on 31 December 1999'. Virtually all EU payment and securities settlement systems, and exchanges, will be closed on 31 December (the only exception is Denmark, where the domestic currency RTGS and settlement system will open in the morning).

96 In a number of countries specific legislation was necessary, while in others this was not the case. Although the 'default' alternative settlement day differs from country to country (30 December or 3 January), a common element is that market participants are left free to decide bilaterally on their own preferred date.

97 Monday, 3 January 2000 will be a normal business day in most EU countries; TARGET (including domestic euro RTGS systems) will be open. In the UK and Ireland, 3 January is a public holiday since 1 January falls on a weekend. The exchanges in these two countries will

TABLE 8: BUSINESS DAYS IN 2000[1]

	Payment systems		Security settlement systems	Exchanges[2]		National holidays in 2000[2]
	euro RTGS	Other[3, 4]	(CSDs and ISCDs)	Bonds and equities	Options and futures	
EU-wide	O	O (EBA)[4]	O	–		–
Austria	O and open on 21 April[5]	-	O and open on 21 April	Closed on national holidays and on 21 April and 29 Dec		6 Jan, 24 April, 1 May, 1, 12 and 22 June, 15 Aug, 26 Oct, 1 Nov, 8, 25 and 26 Dec
Belgium	O	-	O	Closed on 21 and 24 April, 1 May, 1 and 12 June, 21 July, 25, 26 and 29 Dec		24 April, 1 May, 1 and 12 June, 21 July, 15 Aug, 1 Nov and 25 Dec; Bank Holidays on 2 Jun, 13 Nov and 26 Dec
Denmark	O	C[3]	Euro: O Krone: C	Closed on all national holidays (5 June only pm)		20, 21 and 24 April, 19 May, 1, 5 and 12 June, 25 and 26 Dec
Finland	O	C and also partly closed on 20 April[4]	(APK/RM): O (APK/OM): C and also partly closed on 20 April	Closed on all national holidays and also partly on 20 April		6 Jan, 21 and 24 April, 1 May, 1 and 23 June, 6, 25 and 26 Dec
France	O	O[4]	O	Closed on 21 and 24 April, 1 May, 12 June, 14 July, 25 and 26 Dec	MATIF and MONEP - index options and futures: O MONEP - equity options: as per Stock Exchange	24 April, 1 and 8 May, 1 and 12 June, 14 July, 15 Aug, 1 and 11 Nov, 25 Dec
Germany	O	O[4]	O	Closed on national holidays except on 1 and 12 June, and 3 Oct (thus open on all TARGET operating days)		21 and 24 April, 1 May, 1 and 12 June, 3 Oct, 25 and 26 Dec
Greece	O	C[3]	Euro: O Drachma: C	Closed on all national holidays		6 Jan, 13 March, 28 April, 1 May, 19 June, 15 Aug, 25 and 26 Dec
Ireland	O	-	O	Closed on all national holidays	Closed on 3 Jan, 21 and 24 April, 1 and 29 May, 28 Aug, 25 and 26 Dec (Finex Europe)	3 Jan, 17 March, 21 and 24 April, 1 May, 5 June, 7 Aug, 30 Oct, 25, 26 and 27 Dec
Italy	O and open on 21 April[5]	-	O and on 21 April	Open on all TARGET operating days		6 Jan, 24 April, 1 May, 15 Aug, 1 Nov, 8, 25 and 26 Dec
Luxembourg	O	-	O	Closed on all national holidays and on 21 April and 29 Dec		21 (Bank Holiday) and 24 April, 1 May, 1, 12 and 23 June, 15 Aug, 1 Nov, 25 and 26 Dec
Netherlands	O and open on 1 May[5]	-	O and on 1 May	Closed on all national holidays		21 and 24 April, 1 and 12 June, 25 and 26 Dec
Portugal	O	-	O	Closed on national holidays and on 24 April, 13 June and 26 Dec	As per Stock Exchange	7 March, 21 and 25 April, 1 May, 22 June 15 Aug, 5 Oct, 1 Nov, 1, 8 and 25 Dec
Spain	O	O[4]	O	Closed on all national holidays and on 6 Jan, 20 and 24 April, 2 and 15 May, 9 Nov and 26 Dec	Equity derivatives: as per Stock Exchange. Fixed-income derivatives: closed on 6 Jan, 20 and 21 April, 1 May, 15 Aug, 12 Oct, 1 Nov, 6, 8, and 25 Dec	21 April, 1 May, 15 Aug, 12 Oct, 1 Nov 6, 8 and 25 Dec
Sweden	O	C[3]	Euro: O Krona: C	Closed on all national holidays and in the afternoon of 5 Jan, 20 April, 31 May and 3 Nov		6 Jan, 21 and 24 April, 1 May, 1, 12 and 23 June, 25 and 26 Dec
UK	O	C[3]	Euro: O Sterling: C	LSE: closed on all national holidays	Closed on national holidays except 29 May and 28 Aug (open for some contracts only)	3 Jan, 21 and 24 April, 1 and 29 May, 28 Aug, 25 and 26 Dec

Notes

1 O = open on all TARGET operating days in 2000: all weekdays except 21 and 24 April, 1 May, 25 and 26 December (1 January falls on a weekend). C = closed on all national holidays.
2 Dates that fall on a weekend in 2000 are not included in these columns.
3 RTGS system in national currency
4 Large-value netting system for euro transactions
5 For domestic payments only (final decisions have yet to be taken)

remain closed, but the euro payment and securities settlement systems will be open in line with TARGET. In the UK, CHAPS sterling will be closed, and CREST, CGO and CMO will not be open for sterling settlement.

Beyond 3 January 2000

98 In July, the ECB Governing Council announced its decision on TARGET business days for the year 2000. TARGET as a whole, and the CCBM for the cross-border use of collateral, will – in addition to all Saturdays and Sundays, 1 January and 25 December – be closed on the following days: 1 April (Good Friday), 24 April (Easter Monday), 1 May (Labour Day) and 26 December (Boxing Day). The ECB also announced that in euro-area countries where one of these days is not a public holiday, the NCB will endeavour to close the national RTGS system: 'Where this is not possible, the NCB will seek to limit domestic payments activity as much as possible. The standing facilities will be available at those NCBs that remain open for such limited activities'.

99 Table 8 provides an overview of business days in the EU in the year 2000, both for (wholesale) payment and securities settlement systems and exchanges.

- Euro RTGS systems, as well as the other large-value netting systems and securities settlement systems for euro transactions, will generally remain closed on TARGET closing days. Only a few NCBs in euro-area countries will (or intend to) keep their national RTGS system open on certain of those days.
- In EU countries outside the euro area, euro RTGS systems (and securities settlement systems for euro transactions) have to remain closed on all TARGET closing days. However, the national currency systems will be available on those days when there is not a public holiday.
- Exchanges will generally be closed on national holidays in individual countries, as in 1999 (although some exchanges' opening does not fully coincide with the national holiday calendar). Few exchanges will open on all TARGET operating days; and when TARGET is closed in 2000, almost all the exchanges will also be closed.

D LEGAL ISSUES

ECB legal instruments

100 The ECB has published a 'Compendium' containing all its public legal instruments during the first 12 months of its establishment since June 1998. The Compendium is available from the ECB in all 11 official Community languages, and an English language version can be obtained from the Bank of England. More recently, on 23 September, the ECB Governing Council adopted an ECB Regulation ((EC) No 2157/99) on the powers of the ECB to impose sanctions. The Regulation, which applies only in participating Member States, supplements the Council Regulation (EC) No 2532/98 of 23 November 1998 concerning the powers of the ECB to impose sanctions.

EBF Master Agreement

101 On 29 October the EBF, in co-operation with the European Savings Banks Group, published its European Master Agreement (EMA), covering in particular repo transactions and securities lending. The press release notes that the EMA is primarily designed to replace master agreements existing under the laws of various continental European countries, which are used predominantly in a domestic context (see the EBF's website). Legal opinions are being sought in the various European jurisdictions.

Redenomination of share capital

102 The UK is planning to enact legislation on share redenomination. Following its earlier consultation in January 1998, the DTI is hoping to publish over the next few months a consultation document which will include a draft Order amending the Companies Act 1985, to be made under the Deregulation and Contracting Out Act 1994.

103 The proposed mechanism for share redenomination would allow a company to decide to convert the nominal values of all or part of its share capital into equivalent values denominated in a different currency. An ordinary resolution of the members would be required, except where conversion was from a participating national currency to the euro. In that case, a directors' resolution would suffice, subject to veto by ordinary resolution. A company which had redenominated its share capital would be given the additional power to reduce its share capital (without any need for Court approval) in order to facilitate 'renominalisation' (ie adjustment of the resulting nominal values to a more convenient figure). In accordance with the requirements of the EU Second Company Law Directive, such a reduction would be by special resolution, would be limited to an amount of 10% of the reduced share capital, and would require the creation of a corresponding undistributable reserve. Provision would also be made for the automatic conversion of references in legal documents, on redenomination, but that would be subject to the overriding principle that existing substantive rights and obligations should not be affected by the redenomination.

104 Conversion to 'no par value' shares will not be an aspect of these particular proposals. The European Commission has confirmed that the EU Second Company Law Directive, as currently drafted, would not permit a system of US-style 'true' no par value shares (although it would permit replacement with a system of 'accountable par', which plays essentially the same role as nominal value). The Company Law Review is, however, considering the wider issue of reform of capital maintenance rules, as a priority. Another consultation document is due for publication shortly.

CHAPTER 4: USE OF THE EURO IN THE UK BEYOND THE CITY

Overview

1 The Bank of England, in co-operation with HM Treasury, has a continuing interest in monitoring both the current and expected use of the euro in the UK corporate sector, which will have an effect on the euro facilities and services that need to be provided by banks and other financial institutions.

2 Use of the euro (as opposed to previous EMU-11 currencies) has remained very low indeed throughout the non-financial sectors of the UK. There have been many surveys during the course of the year indicating that previous EMU-11 currency transactions have mostly not yet been converted to euro. The low use of the euro here is consistent with the pattern observed so far within the first wave. The inevitable focus this year on Y2K issues may have contributed to the slow changeover. However, some surveys and anecdotal evidence show that UK firms expect to increase their use of the euro significantly in future, both in place of legacy currencies and other currencies, including sterling.

Monitoring by Bank Agents

3 The Bank's regional Agents have continued to monitor current and expected future use of the euro among their contact firms on the basis of a short questionnaire. Our aim is to discover the extent to which firms' business with the euro area is denominated in the euro or previous EMU-11 currencies, and the extent to which the euro is displacing other currencies such as sterling or the dollar in these transactions. Large firms and companies in the manufacturing sector are over-represented in the sample, which is quite small (180 responses), and covers the last six months. The conclusions can be summarised as follows.

- Almost 80% of the firms consulted have a designated individual responsible for EMU issues.
- The proportion of total purchases and sales (both in the UK and abroad) reported to be invoiced in the euro or previous EMU-11 currencies is low, at 6% and 5% respectively.
- The percentage of firms expecting an increase in invoicing of total purchases and sales in euro and previous EMU-11 currencies (at the expense of other currencies, such as sterling) is nearly 60%. The proportion expecting their invoicing of other UK companies to switch to euro or previous EMU-11 currencies is around 25%.
- Firms expect the average level of total purchases and sales invoiced in the euro to increase to 13% and 14% respectively between now and the end of 2002, mainly at the end of this period.
- More than 50% of responses cite customer demand as a reason for changing to invoicing in euro.

Public sector monitoring

4 HM Treasury's *Third Report on Euro Preparations*, published last month and available on its website, contains a section on use of the euro in the UK, summarising all the available evidence on usage of the euro in the UK outside of the financial sector. This remains low. The *Third Report* stresses that monitoring exercises on use of the euro are no substitute for individual firms keeping in close contact with their customers and suppliers to understand their euro plans.

Private sector surveys

5 Since the June *Practical Issues*, KPMG Consulting has published an update of its 'eurocreep' survey. This covered the second quarter of 1999 and the results were published at end-August. The sample size was increased from 400 to 700 respondents. It is difficult to draw definitive conclusions from these data. Clearer trends will emerge as more data become available. The main findings can be summarised as follows (see also Table 9).

- The euro (excluding previous EMU-11 currencies) represented only about 1% of the total value of all transactions undertaken by UK businesses and its use has remained low and stable.
- The euro and EMU-11 currencies combined represented about 5% of the total value of transactions undertaken by UK businesses.
- Use of the euro in domestic UK transactions was still extremely low - less than 0.25%.
- 26% of transactions between the UK and the euro area were denominated in EMU-11 currencies, and a further 7% in euro, making a total of 33%. The EMU-11 currency displacement ratio is calculated on a quarterly basis and gives an indication of the speed at which the euro is replacing EMU-11 currencies. The ratio fell from 24% (Q1) to 21% (Q2), reflecting a faster increase in transactions denominated in EMU-11 currencies than those in euro.
- The number of companies which used the euro (as opposed to previous EMU-11 currencies) for at least one transaction in Q2 was 13%. This is less than the 23% of companies which expected to make use of the euro in Q2, indicating that companies overestimated the impact that the euro would have on their activities

TABLE 9: SUMMARY OF KPMG'S EURO SURVEY: 1999 Q1 and Q2

Currency	All UK transactions		UK to euro area		UK to rest of world		UK to UK	
%	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2
Sterling	85	80	43	48	30	31	97	94
EMU-11 currencies	2	4	15	26	2	1	1	1
Euro	1	1	5	7	0	1	0	0
US dollar	7	11	15	12	42	53	1	3
Other currency	6	4	22	6	25	14	1	2
Total	100	100	100	100	100	100	100	100

then. In the Q2 survey, 13% of the companies which had not yet used the euro in any transaction said they were likely to do so in the next three months. 74% of large companies reported that it was unlikely they would use the euro in the next three months, compared with 85% in Q1.

6 KPMG plans to launch another survey in early 2000 which will cover the use of the euro during the last two quarters of 1999.

Euro retail payment volumes

7 To date, the volume of retail payments made in euro within the UK remains very small. In October, 6,000 euro-denominated cheques were cleared, with a value of some €56 million, the majority of which were made by companies. This represented just 0.004% of all domestic cheque payments by volume.

8 APACS has been carrying out regular market research on business attitudes to the euro, both in terms of actual behaviour and future intentions (see the APACS website). At the beginning of the year, some UK businesses expected that the euro might increasingly be used for trade within the UK, even while the UK remained outside EMU. But this has not so far happened, and a significant shift is no longer expected in the near-term.

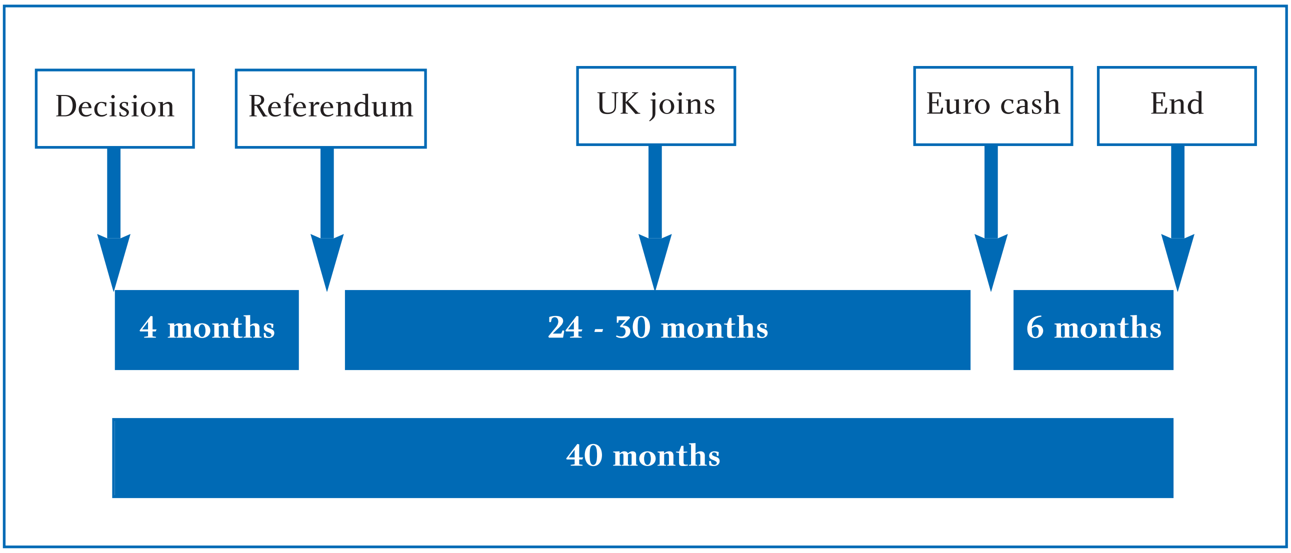
9 An increasing number of businesses have experience of making euro payments to, or receiving them from, the euro area. The survey indicates that, by October, nearly three times as many companies had handled payments in euro compared with six months earlier. Many companies in the euro area have been slow to adopt pricing, invoicing and payment in euro, but this will inevitably change, at least during 2001. There remains an expectation among survey respondents of significantly higher future cross-border euro payment volumes.

10 According to the survey, around 30,000 businesses have opened euro accounts (this figure has not changed throughout this year). Overall, this figure represents around 3% of UK businesses, but the proportion varies markedly by size of business: only 1% of small businesses (turnover under £1 million) have euro accounts, compared to 15% of larger businesses.

CHAPTER 5: PREPARATIONS FOR POSSIBLE UK ENTRY

A THE OUTLINE NATIONAL CHANGEOVER PLAN

1 The first Outline National Changeover Plan (NCP) was published by the UK Government on 23 February 1999. It identified a broad timetable for the key stages of the changeover in the UK should it decide to join EMU: see the illustration below. The NCP estimated that the whole changeover could be achieved in 40 months (or less). This would be considerably shorter than in the first wave, because the euro already exists and the corporate and public sectors are already adapting to the euro. Furthermore, the UK can learn from the experience in other EU countries. In total, the period between a Referendum and the introduction of euro notes and coin in the UK was estimated to take 24-30 months, but the NCP did not specify the length of the period between a Referendum and EMU entry, or between entry and the introduction of euro cash. Further work is in hand on this and other important outstanding issues.



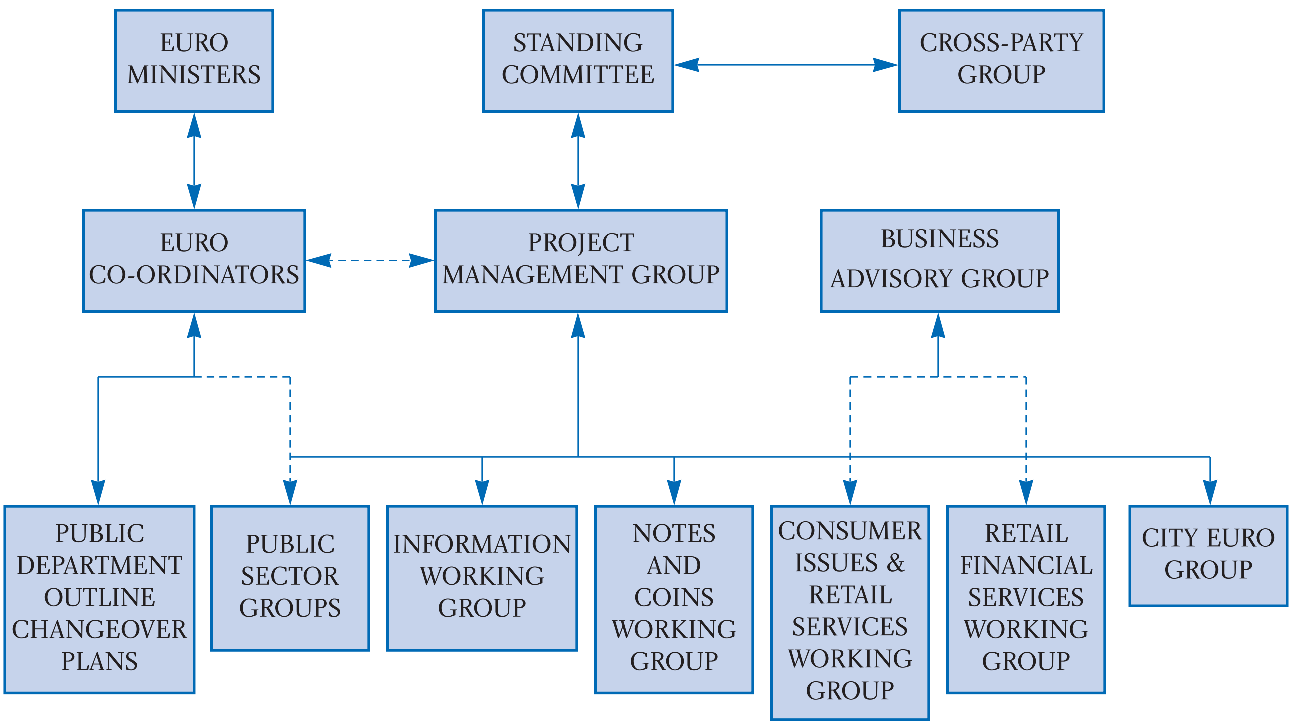
2 Government policy is to plan and prepare now, in order that the UK should have a genuine option to join the euro, if that is what the Government, Parliament and the people in due course decide. Since publication of the NCP, the Government has established a structure of working groups to involve a broad cross-section of institutions and sectors in taking forward planning work. Publication of progress reports on this work is part of the planning process.

The changeover project structure

3 The planning structure is illustrated below. The Standing Committee on Euro Preparations, chaired by the Chancellor, oversees changeover planning. Members include key Ministers, and the most senior representatives of the Bank of England, British Bankers' Association (BBA), British Chambers of Commerce, British Retail Consortium (BRC), CBI, FSA and TUC. The Committee consults with both the Cross-Party Parliamentary Group on Euro Preparations and the Business Advisory Group (BAG). At a working level, a series of

groups have been established, bringing together the public, private and voluntary sectors, to examine particular key issues. The groups do not work in isolation from each other, since they will very often be addressing different aspects of the same issues. Between these two levels, HM Treasury has established a new Project Management Group, to monitor and co-ordinate the work of the groups and to ensure a consistency of approach. It includes representatives from the Bank of England, BBA, BRC, CBI, Customs & Excise, Department of Social Security, HM Treasury and the Royal Mint. The Project Management Group is assisted by a 'project assurance' team, which provides analytical support for the whole planning process.

4 Preparation in the public sector has picked up following the Finance Act and Welfare and Reform Act, which included provisions to allow the key departments (Department of Social Security, Inland Revenue and Customs & Excise) to begin spending money on practical euro preparations. In addition, each Government department is required to produce its own changeover plan by the end of 1999, which requires an understanding of the facilities which might need to be offered during the changeover.



B PLANNING IN THE CITY

5 The Bank of England has responsibility under the NCP for co-ordinating planning in the wholesale financial markets. To assist this, it has established a City Euro Group (CEG) with representation across the City. The CEG serves as a communication channel, both for the Bank to inform the wider market about the developing preparations, and for its members to identify to the Bank any issues, questions or areas for further work. The role of the CEG is not to undertake detailed work and resolve issues itself, but rather to identify the key issues and to ensure that the right work on them is undertaken. Its work is being progressed primarily through CEG sub-groups.

6 The CEG succeeded the Wholesale Market Working Party (WMWP), whose Report was published in the June *Practical Issues*. This Report set out, at a greater level of detail than the Outline NCP, what would be required for the wholesale markets to change over from sterling to euro. A small number of areas were left unresolved, which are being progressed under the CEG's auspices as follows.

Possible interconnections between wholesale market and retail financial preparations

7 The WMWP Report stated that the banks' ability to offer wholesale euro products to retail customers would depend on their capacity to handle euro payments to and from their retail customers. So lead times in the wholesale markets are partly dependent on those for the provision of euro retail financial services. It was recognised that this dependence required further elaboration and analysis. A small CEG sub-group has been set up for this purpose.

8 This sub-group is currently examining the channels through which retail payments are generated by the wholesale markets. The largest volume of payments seems to originate in the equity and gilt-edged markets, involving both dividend payments and payments arising from purchases and sales. The channels connecting retail investors and the wholesale markets are in some cases complex, involving intermediaries such as brokers, fund managers and custodians.

9 It is too early to say whether the existence of these channels creates interdependencies between the banks' retail preparations for the euro, and their wholesale market preparations. As noted in the previous *Practical Issues*, if there are no interdependencies, we believe that a one-year lead time remains valid for the implementation of most of the wholesale preparations. But if there are interdependencies, the lead time is clearly longer. The working party is investigating the lead time implications in the course of its work.

Development of CHAPS

10 The WMWP Report noted that further work was needed on how best to develop CHAPS to provide a euro-only RTGS system to handle the volume of payments that would arise if the euro were to become the UK domestic currency. During the first part of 1999, the CHAPS Company undertook a full strategic review, resulting in a feasibility study and statement of user requirements for the evolution of the sterling payment system. This review *inter alia* looked at the requirements for EMU. The proposals were discussed at the CHAPS Board Strategy Day on 5/6 October. Four sub-groups were subsequently formed, looking at different aspects of the future requirements for a large value payment system. These are the DvP Working Group, the RTGS Plus Working Group, the Market Sector Definition Working Group and the CHAPS Future Architecture Business Case Working Group. The four groups reported to a further Board meeting on 10 December.

CRESTCo's plans for the changeover

11 The WMWP Report noted that there were three particular issues raised by the approach of CREST in relation to Irish securities at the launch of the euro, which differed from that proposed by the Central Gilts Office (CGO) for UK entry.

- Whether the settlement of transactions involving equities or debt securities outstanding at entry should be in sterling, or whether some or all transactions should be converted centrally to euro consideration at entry. Both CREST and CGO are multi-currency systems and could support the principle of allowing transactions to settle as dealt (ie in sterling). However, since it is planned that RTGS would operate only in euro from entry, the resulting payment stream would need to be converted before processing.
- Whether redenominated debt securities and equities should retain the same ISIN code after redenomination.
- Whether the process of redenomination of gilt-edged securities (which is likely to be simultaneous for all gilt-edged securities) should be undertaken by CREST or by the Bank of England Registrar's Department.

12 Following the successful transfer of ownership of CGO to CRESTCo in May, and the planned merger of the systems at the end of June 2000, it is now appropriate to resolve these issues with the market. Consequently CRESTCo has agreed to set up a small working party to include representatives from GEMMA, DMO, LSE and the Bank of England, among others, to try to resolve these issues in time for the publication by HM Treasury of the next NCP.

Fund management

14 The WMWP Report did not specifically consider fund management preparations, including issues affecting both wholesale and retail sectors. Many of the preparatory issues for fund managers would be similar to those for the rest of the financial services industry. But there are some issues which are more or less specific to fund managers. A fund management sub-group of the CEG has been considering these.

15 *Model test portfolio* Fund management associations and custodians consider that a model test portfolio would be useful to fund managers and custodians for testing prior to UK entry, as it was prior to the launch of the euro in the first wave. They would be expected to take the lead in constructing a model test portfolio, with input from market participants, as soon as possible after the legal framework for the redenomination of Government and corporate bonds and equities has been determined. The model test portfolio would be disseminated as widely as possible, so as to maximise the benefit for market participants. There could be two different versions: a complete version for UK-based investors; and a less comprehensive version for investors based abroad, as they would need less data.

16 *Best practice guidelines* Fund management associations and custodians consider that the best practice guidelines used for the conversion to euro of the EMU-11 currencies in the first wave would also be useful - subject to appropriate modification - for the conversion of sterling to euro, if the UK were to join EMU. In particular, the guidelines relating to fund managers' relations with brokers and custodians over the conversion weekend would be relevant, subject to appropriate modification. Once the legal framework for redenomination has been determined, guidelines would also need to be agreed by fund managers and custodians for the treatment of odd lots and fractions, in order to try to achieve uniformity of treatment by custodians, and reduce the complexity and costs of conversion. Best practice guidelines might be relevant in other areas, though this is not yet clear.

17 *Changeover in unit trusts and OEICs* The current regulations would not require a unit holder meeting for a unit trust to make a change in base currency during the transition period after UK entry. But the current OEICs regulations would have to be amended to allow an OEIC to make a change in base currency (the currency or denomination in which the accounts are prepared) without a shareholder meeting. An opportunity to make the necessary amendment is currently available, as revised OEICs regulations are being prepared in the context of the Financial Services and Markets Bill.

18 During the transition period, pricing and accounting information for unit trusts and OEICs would be expected to be denominated in the base currency of the collective investment scheme concerned, whether sterling or euro. The timing of the change in base currency from sterling to euro (and the change in pricing) would be at the discretion of the fund manager. The result would be likely to be that, during the transition period, some firms would price in euro, while others would price in sterling. But market associations expect that each fund manager would change the base currency and pricing of all the unit trusts and OEICs in its stable at the same time.

19 The FSA would need to assess in advance, and communicate through its rule book, the disclosure requirements for collective investment schemes during the transition period. The current principles which apply to marketing and advertising would be likely to remain unchanged in broad terms as a result of UK entry. But some clarification might be needed as to what ‘clear and not misleading’ would mean during the transition period.

20 *Changeover in pension funds* Trustees would be free to choose whether to require accounts to be prepared in sterling or euro during the transition period. It would be helpful to the fund management industry and reduce costs to pension funds if a uniform approach was adopted by pension funds. The NAPF would recommend that pension funds should normally account in euro for both management and published accounting periods which start after UK entry.

21 *Local and reporting book costs* Consideration would need to be given to the implications of UK entry for both local and reporting book costs. This would need to cover both assets purchased in a first-wave currency before the launch of the euro and assets purchased in euro prior to UK entry. Fund management associations and custodians consider that a process of consultation should start as soon as possible, so that a common approach and methodology can be agreed. It is proposed that worked examples, clearly highlighting the options, outcomes and issues arising should be circulated and discussed to see if some form of consensus emerges. Fund management associations and custodians are preparing worked examples to discuss with their members and other interested parties, including the accountancy bodies. The Inland Revenue would also need to be consulted, as client accounting for book costs might be affected by tax requirements.

22 *Historic performance records* Prior to the introduction of the euro in the first wave, the EFFAS Permanent Commission on Performance Measurement published a discussion document on the impact of euro conversion. This established overriding principles and guidelines relating to the presentation of historic data and the construction of composites and peer groups.

23 These overriding principles and guidelines would be likely to apply to the conversion of sterling to euro, if the UK were to enter EMU, as they did to the conversion of the EMU-11 currencies in the first wave. Fund management associations and custodians are considering the implications of the overriding principles and guidelines for the conversion of sterling to euro. If any problems emerge, they consider that the European Investment Performance Committee, which is part of the Global Investment Performance Committee sponsored by the American Association for Investment Management Research (AIMR), would be the appropriate body to make recommendations as to how to overcome them.

24 *Supervision* The supervisory approach taken by the FSA during the preparations for UK entry would be the same for fund managers as for the rest of the financial services industry, and would be likely to be similar to the approach taken for the launch of the euro in the first wave. The FSA would intend to focus on raising awareness and promoting preparatory work in the financial services industry, by making regular checks on the state of firms' euro preparations through periodic supervision visits, and undertaking a special programme of visits to firms whose preparations it regarded as having a high impact or being at high risk. The FSA would intend to seek written undertakings from firms' senior management about their own preparedness, subject to caveats about other preparations outside their control, and would provide, as long as possible in advance, an indicative checklist of the undertakings that it would expect firms to give. It would also monitor the conversion process, and respond to any problems identified by fund managers, or potential abuses of the conversion process.

Regulation

25 The WMWP Report recommended that existing wholesale market regulation be reviewed to see whether UK entry to the euro would result in major changes. The FSA believes that only minor modification would be required, but is currently in the process of confirming this.

C THE CHANGEOVER EXPERIENCE IN FIRST-WAVE COUNTRIES

26 In the June *Practical Issues*, we included an initial assessment of the changeover experience in first-wave countries, based on information provided to the Bank mainly by euro-area NCBs. This will be a continuing feature of *Practical Issues* as, in preparing for possible future entry, it is prudent to learn as much as possible from the changeover experience in the first wave.

27 In the current edition, we have commented on further lessons to be learned from the first wave in the relevant chapters, as they arise: developments in the monetary policy operational framework of the Eurosystem are covered in Chapter 2; payment systems developments in Chapter 3; and evidence on the use of the euro outside the wholesale financial markets in Chapter 4.

28 In this section, we focus on two other issues arising from the changeover in the first wave which will be of interest to financial market practitioners in the UK. The first concerns changes in the Bank's monetary policy operations which would be required in order to comply with the operational framework of the Eurosystem, if the UK were to join EMU. The

second concerns the statement issued by EU Finance Ministers on the cash changeover in the first wave.

Monetary policy operational framework

29 If the UK joined EMU, a number of changes would be required in the Bank's monetary policy operations. A high level comparison between the operational framework of the Eurosystem and that of the Bank is shown in Table 10.

TABLE 10: EUROSYSTEM AND BANK OF ENGLAND MONETARY POLICY OPERATIONS

	EUROSYSTEM		BANK OF ENGLAND
Reserve requirements	Yes (2%), with averaging facility		No
Standing facilities	Deposit facility Marginal lending facility		None
Refinancing operations			
Frequency	Low		High
	Weekly (MRO)	Monthly (LTRO)	Twice daily
Maturity	Two weeks	Three months	Two weeks[1]
Tender technique	Fixed-rate or variable-rate[2]	Variable-rate	Fixed-rate
Counterparties - eligible	Approximately 2,500[3]	Approximately 2,500[3]	About 20
- active	On average 800	On average 300	All 20
Liquidity forecasts	Not published		Published four times daily
Other operations	Wide range of fine-tuning operations and structural operations to provide or absorb liquidity (which have not to date been used)		FX swaps to provide liquidity, and issuance of Treasury bills to drain liquidity (both through structural and ad hoc operations)
Eligible assets	Tier 1 and Tier 2 eligible assets (in total around €5,700 billion, of which €5,600 billion Tier 1)		In total around €3,500 billion (of which €3,000 billion euro-denominated EEA government securities included on the Eurosystem Tier 1 list)

Notes

1 In addition, the Bank purchases bills outright with a maturity of up to 14 days. Also, the Bank of England employs a temporary (until early 2000) longer-term repo operation (weekly, with a maturity of three months initially).

2 Variable-rate MRO tenders not used so far (see Chapter 2, section A).

3 All (approximately 8,000) credit institutions are subject to reserve requirements and could potentially be counterparties; some 2,500 of them meet the eligibility criteria set by Eurosystem NCBs.

30 Both the Eurosystem and the Bank of England operate as a regular lender to credit institutions, using market-oriented techniques; the provision of liquidity takes places on a

secured basis, against a wide range of collateral. The main monetary policy instrument of both the Eurosystem and the Bank is a regular refinancing operation with a two-week maturity. Despite these similarities, there are also significant differences.

- The Eurosystem imposes reserve requirements on credit institutions, which must meet this requirement on average over a month. Reserve requirements are not part of the current Bank of England framework. Instead, the relevant banks in the UK (which comprise only the settlement banks, a much narrower group than those subject to reserve requirements in the Eurosystem) have a daily requirement to hold a balance at the Bank of England that cannot fall below zero (thus no 'averaging').
- The Eurosystem provides two (continuously available) standing facilities, enabling credit institutions either to deposit excess liquidity with their NCB or to access additional liquidity to make up a shortfall. By contrast, the Bank of England offers no comparable facilities.
- These first two factors mean that the Eurosystem can employ far less frequent operations (weekly and monthly) than the Bank of England, which typically conducts market operations twice daily.
- All credit institutions in the Eurosystem are subject to reserve requirements, and thus have the right to become a counterparty (if they fulfil certain eligibility criteria). In the UK, institutions other than banks (eg securities houses) can apply for counterparty status. However, the Bank's qualifying criteria are more narrowly defined, including a requirement to be an active participant in the money market.
- Less significantly, the Eurosystem can make use of both fixed and variable-rate tenders in the main refinancing operations, whilst the Bank of England uses only fixed-rate tenders when providing liquidity.
- Also, the Bank would have to introduce the Eurosystem monthly longer term refinancing operation with a three-month maturity. (In October 1999, the Bank introduced three-month repo as a temporary facility to cover only the millennium period; and the precise terms of the facility differ from the Eurosystem LTRO.)

31 There are also some differences in the range of assets accepted as collateral in the two operational frameworks, although these differences have been reduced significantly through changes made to the Bank of England's list of eligible collateral since October 1998. The Bank now accepts a wide range of securities, including approximately €3,000 billion of securities denominated in euro issued by the central governments and central banks of the countries in the EEA. This means that the Bank is now able to accept a significant portion of the assets eligible as Tier 1 collateral in the Eurosystem monetary policy operations. If the UK were to join EMU, it would be necessary to add only the remaining Tier 1 paper (eg local government paper) and Tier 2 eligible assets.

Notes and coin

32 The introduction of euro banknotes and coin in the first wave on 1 January 2002 will be the most visible step in the changeover, and an unprecedented logistical challenge.

Having consulted the ECB and NCBs, EU Finance Ministers agreed at ECOFIN on 8 November a statement outlining their views on the strategy for the cash changeover.

- Member States in the first wave will make their best efforts to ensure that the bulk of cash transactions can be made in euro within a fortnight from 1 January 2002.
- The period of dual circulation between old and new notes and coin should last between four weeks and two months. Member States can facilitate the exchange of old notes and coin after that period.
- To provide for a sufficient quantity of notes and coin in circulation in the early part of January 2002, financial institutions and certain other groups, particularly cash-in-transit companies and retailers, should be front-loaded with notes and coin some time before 1 January 2002, but this must not lead to euro notes and coin being put into circulation before 1 January 2002.
- To help citizens in the first wave to familiarise themselves with the new coins and to facilitate the changeover, Member States may agree to make limited quantities of coin available to the public on request, notably to the vulnerable groups in the population, but not before the second half of December 2001.

33 This approach is designed to leave room for individual Member States in the first wave to implement the changeover in the way which best suits the specific circumstances in each country.

D EMU PREPARATIONS IN DENMARK, GREECE AND SWEDEN

Overview

34 In addition to maintaining contact with the first-wave countries, the Bank has recently taken the opportunity to visit the other 'out' countries' central banks to assess preparations for possible EMU entry. These are described in detail below. The key similarities and differences can be summarised as follows.

Similarities

- Each 'out' country is facing the difficulty of preparing under uncertainty both in relation to the probability of entry and its precise timing, although this is less so in Greece where early entry is a principal Government and popular ambition.
- In each country the longest lead times relate to preparation in the public sector, retail financial services and for the production of sufficient euro notes and coin.
- Partly as a result, it is likely that in each country the full transition to the euro would take place over a period of time after entry, though this is not yet established for Sweden.
- Each 'out' country has gained changeover experience from its own preparations to use the euro as a foreign currency in the financial markets ahead of the launch of the euro; but equally the transformation from national currency to euro would still represent a key challenge.

- For each 'out' central bank, major internal changes would be required, including to accounting systems, to adopt the full Eurosystem requirements.

Differences

- Each 'out' country is planning its preparations in its own way, reflecting the different status of the debate in each country and the firmness or otherwise of the possible entry timetable.
- Political support for near-term entry in Greece is unambiguous, which is helpful to those preparing in practice, whereas in both Denmark and Sweden political hurdles remain, resulting in more uncertainty about the likelihood and timing of entry.
- Unlike in Greece, a referendum is required in both Denmark and Sweden: in Denmark, a referendum would follow a decision by Government and Parliament, whereas the Swedish Parliament would only take its decision after a positive referendum result.
- Denmark and Greece have published outline national changeover plans, but not yet Sweden, although this has not hindered its practical preparations.
- Whereas in Greece and Sweden, official preparations are proceeding where possible, even ahead of an entry decision, in Denmark official preparations cannot be implemented until a positive referendum result, although this does not preclude planning of the necessary changes and - where possible - incorporating euro-related changes as part of project development which is anyway taking place.
- Whereas in Greece the framework for conducting monetary operations has already evolved to its current position close to the Eurosystem model, in Denmark and Sweden major changes would be necessary.

Denmark

35 Denmark's position on EMU entry can be summarised as follows.

- A referendum on EMU entry is most likely in 2001, so long as the SDP Congress in September next year gives a positive opinion. Until the referendum had been held, the scope for preparations particularly in the public sector is limited.
- Opinion polls since March have shown a fairly consistent margin of some 8% in favour of entry.
- An Outline National Changeover Plan was published on 1 December. This indicated that around one year would be required between a referendum and EMU entry, followed by a period of up to two/three years until the introduction of euro notes and coin in Denmark.
- Danmarks Nationalbank (the Danish central bank) is not preparing for EMU entry but is, wherever possible, taking EMU into account in its normal IT project developments.

Background

36 Like the UK, Denmark activated its opt-out clause from the Maastricht Treaty and so, even though it had fulfilled all the convergence criteria, it was not amongst the first

11 participants in EMU. A referendum result in favour of entry is required in order to change the current Danish position.

37 Public opinion in Denmark on EMU participation formerly generally showed a minor negative margin, but around the time of the introduction of the euro opinion polls switched to a clear majority supporting participation. Since March, the 'yes' margin has been fairly stable at around 8%. The November update of the most frequently published poll showed 42% in favour of Danish EMU participation, 34% against and 24% undecided.

38 The change in public opinion has spurred a debate in Denmark on whether and when to call a referendum. The decision is in the hands of the Danish Prime Minister. He has made known his personal view that it would be in Denmark's best interests to join the euro. In August, the Prime Minister stated that there should be a period of a year for the provision of information and for debate, ahead of the SDP Congress in September 2000, which would adopt an opinion on the question of Danish EMU participation. A referendum would be held after the Congress, and before the next general election which is due no later than March 2002. The Prime Minister has held open the possibility of speeding up the decision-making process in the event of unforeseen circumstances.

Preparations at national level

39 In January 1996, the Danish Government established an EMU Committee, chaired by the Ministry of Economic Affairs, with the participation of business associations, various other organisations, the financial sector, ministries and Danmarks Nationalbank. Following questions in Parliament this spring, the EMU Committee was asked to prepare an Outline National Changeover Plan, which was published on 1 December. The report contains an overview of the scenario for entry, as well as the timespan for the various stages of the changeover in the key sectors in the event of a Danish EMU entry, and the underlying factors determining this timetable.

40 Both the private and public sectors have begun to consider how the changeover might be organised. If the result of the referendum is positive, the changeover in the public sector will be initiated immediately. The transition to full use of the euro in all areas of the public sector is likely to take a period of years, so it is unlikely that full functionality will be available by the date of a Danish entry.

41 The Outline National Changeover Plan is summarised in the Box.

- Around one year will be required from a positive referendum outcome to Danish entry to EMU. The Ministry of Economic Affairs and Danmarks Nationalbank believe that the EU acceptance procedure itself would take up to six months. The period between the referendum outcome and entry will also allow for the finalisation of the necessary Danish legislation, and for preparations in the financial sector including for participation in the Eurosystem operations.
- A further period of up to two/three years would be required after entry before the introduction of euro notes and coin in Denmark. This would allow for the completion of preparations for full use of the euro in the public and private sectors and for the production of the notes and coin required.

DENMARK'S OUTLINE NATIONAL CHANGEOVER PLAN

Referendum	Denmark joins EMU	Euro cash in circulation / Withdrawal of kroner
Around 1 year	**Up to 2/3 years**	**Maximum 2 months**
The Danish Parliament and the EU ● Royal Assent to the Act on Denmark's adoption of the euro ● Adjustment of the Danmarks Nationalbank Act ● EU procedure (expected to last maximum 6 months) ● Preparation of other adjustments to Danish legislation	● EU regulation on the conversion ratio between krone and euro ● Final amendments to Danish legislation	● Krone notes and coin are still in circulation, but cease to be legal tender after maximum two months
Danmarks Nationalbank ● Adjustment for participation in the single monetary policy of the Eurosystem ● Preparation of production of euro notes and coin	● Danmarks Nationalbank participates in the single Eurosystem monetary policy ● The Governor of Danmarks Nationalbank is a member of the ECB's Governing Council ● Production of euro notes and coin ● Danmarks Nationalbank requires a period of around one year before euro notes and coin can be circulated	● Euro notes and coin are put into circulation during this period ● Krone notes and coin are withdrawn after maximum two months
Financial sector ● Commencement of transition to euro throughout the financial sector ● Transition of the financial sector's systems with a view to fulfulling the reporting requirements etc under the single monetary policy of the Eurosystem	● Completion of the transition throughout the financial sector ● Opportunity to use euro for electronic payments ● Redenomination of securities from kroner to euro	● Exchange of krone notes and coin for euro notes and coin at the banks within maximum two months ● Use of euro in all contexts
Households	● Euro may be used for electronic payments to the extent that they are made available by the financial sector	● Exchange of krone notes and coin for euro notes and coin ● Wages and salaries, pensions, social benefits etc are paid in euro ● Tax is paid in euro
Business enterprises ● Business enterprises can commence the transition process to euro	● A rapid transition process for the business enterprises is possible, providing that eg the required legislation is in place ● Euro can be used for reporting and electronic payments to the extent that this is offered by the public sector and the financial sector	● Exchange of krone notes and coin for euro notes and coin ● Wages and salaries, pensions, social benefits etc are paid in euro ● Tax is paid in euro
Public sector	● The public sector initiates and completes its transition to euro ● Parts of the public sector may already offer to handle transactions in euro	● Wages and salaries, pensions, social benefits, tax, etc, are stated in euro

- The cash changeover in Denmark is expected to take between four weeks and two months. Although krone notes and coin would no longer be legal tender after this period, it would still be possible to exchange kroner for euro at the Danmarks Nationalbank for a period of time.

42 The Maastricht Treaty does not stipulate that new participants in EMU must join at the turn of a year; the exact date of joining EMU would be negotiated with the ECB, the European Commission and the euro-area Member States. The Outline National Changeover Plan states that the exact date cannot be clarified until the issue arises. Circulation of euro notes and coin in the first wave will commence at the turn of the year for administrative reasons (eg to accommodate annual accounts). The Outline National Changeover Plan states that these considerations will probably also apply in Denmark's case.

Financial sector preparations

43 As with the other 'outs', some of the necessary financial infrastructure for the euro is already in place.

44 Denmark has a euro RTGS system (DEBES) linked to TARGET, but domestic RTGS payments currently run through a separate system which has been in operation since 1981. There is a project to replace this with an up-to-date system (KRONOS), which will be S.W.I.F.T.-based, and include facilities for liquidity management. KRONOS is due to be completed in early 2001 and will operate initially in Danish krone only. It will, however, be capable of managing two currencies and be prepared for interlinking to TARGET. Later in 2001, DEBES will be replaced by KRONOS so that Danish banks will have a common, state-of-the-art, system for kroner and euro.

45 The retail payment infrastructure is also partially ready for euro payments. Banks can provide credit transfers in euro, but are not yet able to process euro direct debits, cheques, or credit card payments. The use of the euro clearing service has been almost non-existent since its launch in May 1999. In common with other countries, banks in Denmark are trying to estimate the likely pick-up in demand for euro services before and during the transition period.

46 Individual banks' preparations are co-ordinated by the Danish Bankers' Association (DBA), which intends to produce a report in early 2000. Estimates of lead times for the preparation of product systems differ among banks, in part reflecting the fact that some operate with multi-currency systems, while others are currently using their foreign-currency system for euro services. DBA tentatively estimates that banks would on average need a period of one and a half to two years after a referendum, assuming that no further preparations or investment in IT projects would take place before that date. It is a commercial decision for individual banks whether or not to start implementing projects and investing money before a referendum, and whether or not to offer a full range of euro services at the date of EMU entry or at some point later in the transition period.

47 In March 1999, it was announced that the day-count convention in the Danish bond market would be changed to actual/actual from 8 February 2001. It was felt important to make a change to the agreed euro market conventions, since foreign investors hold a large proportion of Danish bonds, in particular some 45% of Danish Government bonds. On the

same date, a zero ex-dividend period will be introduced for all securities in VP (the Danish CSD). The system changes required for a zero ex-dividend period have allowed for the introduction of decimal places in VP, which would in turn make the redenomination process easier if Denmark were to decide to join EMU.

48 Over the autumn of 1999, a working group chaired by Danmarks Nationalbank (which is responsible for all operational aspects of central government debt management in Denmark) examined the technical aspects of redenomination, in case of EMU entry. The work is still ongoing. The findings of the group will probably be published at the end of this year. So far, the working group has identified a preferred method of redenomination, and proposed a number of approaches to implementation, depending on the timing of a possible entry. The working group recommended that redenomination should take place at investor holding level, with rounding to the nearest euro cent. In their view, all Danish Government debt held in electronic form (99% of the total, including Treasury bills) and all mortgage-backed assets (MBAs) should be redenominated simultaneously at entry.

49 If entry were to take place at a year-end, VP considers that the process would be complicated by the need to run additional processes. The creation of one or two additional Bank Holidays is the preferred solution to this problem. Alternatively, Government debt would be redenominated at entry and MBAs, which are a larger market in terms of outstanding value, on a subsequent weekend. The group sees the passing of a Danish redenomination law as imperative to the process. Such a law should establish the necessary legal framework and establish a clear redenomination process. The law should allow for the redenomination of corporate bonds, provided that the method used is the one used by the Government. It is likely that the dates on which redenomination can occur will be specified. At this stage, the group has merely set out the options and the precise details will not be finalised until a referendum on Danish participation has been held.

Preparations in Danmarks Nationalbank

50 Danmarks Nationalbank has analysed the consequences of EMU entry for its organisation, but is not engaging in full-scale EMU preparations. It has collected information about the experience of central banks in first-wave countries, particularly those of a similar size to Denmark. Internally, each department has set out the ECB requirements for its business area, and the preparations that would be necessary if Denmark decided to join EMU. For the time being, no 'pure' EMU projects are being implemented but, where possible, euro-related changes are being taken into account in the regular IT planning exercise, which has recently been completed for the year 2000.

51 The central bank has estimated that it would need around one year, between a referendum and entry, to implement and complete its EMU preparations. The main areas in which changes would be required are as follows.

- *Monetary policy operations* The two key changes would be the introduction of Eurosystem reserve requirements and an electronic bidding system. Currently, there are no reserve requirements in Denmark and their introduction would involve major changes (including new IT systems) both for the central bank and for the commercial banks. In order to minimise the operational risks related to monetary policy operations, the aim is to develop a fully-electronic bidding system. In other areas, the necessary changes are less significant. Danmarks Nationalbank currently conducts operations to absorb liquidity through the sale of central bank CDs with a maturity of 14 days; in EMU, this would no longer be necessary. A deposit facility is already in place, but a marginal lending facility would have to be introduced. The current list of eligible collateral accepted in operations has recently been expanded to include MBAs, which would qualify as Tier 1 collateral from entry; in EMU the list would have to be expanded further to include 'foreign' collateral.

- *Statistics* In order to bring the Danish financial statistics into line with international standards, preparations to fulfil the ESCB statistical reporting requirements by 2001 are under way.
- *Accounting* Responding to an increasing need for flexible reporting and follow-up systems, the central bank has undertaken a thorough analysis of the existing IT systems (business, accounting and reporting systems). This work also includes an analysis of whether the existing systems fulfil the reporting requirements in the event of a possible Danish EMU entry.
- *Notes and coin* Danmarks Nationalbank would have to provide the initial stock of euro notes and coin, and to prepare for their distribution. It has estimated that it would need around one year after EMU entry to carry out this task (provided it had an initial year between a referendum and EMU entry).

Greece

52 Greece hopes to be the first 'second-wave' entrant. It is aiming to enter EMU on 1 January 2001, and to introduce euro notes and coin at the same time as the first wave on 1 January 2002. An official application for EMU entry is to be made in early March 2000, with a decision expected during the June European Council.

53 The short lead time, together with a compressed changeover timetable, mean that all sectors in Greece have to work very efficiently in order to make the necessary preparations. This is particularly true in the case of those preparations which cannot formally begin until the decision on Greece's application has been made. The timetable is especially tight for the production of euro notes and coin and for technical preparations in the banking sector.

Background

54 The Greek Government has made clear its desire to join EMU at the earliest opportunity, which it believes to be 1 January 2001. It intends to apply officially early next March, after Greek inflation data for February become available, and expects that Heads of State or Government will take their decision on its application at the European Council meeting next June. There is widespread public and business support in Greece for the Government's EMU stance, and this is assisting the process of technical preparation.

Preparations at national level

55 At the beginning of 1998, a National Co-ordinating Committee for the Euro was established: to formulate a national strategy for the changeover to the euro in the economy in general and the public sector in particular; to oversee a number of sub-committees on specific aspects of the changeover; and to formulate and co-ordinate a national communications policy for the euro. The Committee is chaired by the Minister of National Economy, and includes the Governor of the Bank of Greece, together with high-level representatives from finance, industry, commerce, local authorities and the unions. In July 1998, an Outline National Changeover Plan was published under the Committee's auspices. Since that time, the Plan has been supplemented by a series of circulars on specific topics from the Ministries of National Economy and Finance.

56 In April 1998, the Ministry of Finance set out plans for the changeover in the public sector. Government expenditure and tax receipts will in general continue in drachmas during the transition period, although certain Government accounts and the Budget will be expressed in both denominations. Both business and members of the public will be able to submit tax declarations in both drachmas and euro from entry.

Financial sector preparations

57 The Hellenic Banks' Association (HBA) has established an EMU Steering Committee to encourage and co-ordinate credit institutions' preparations. It also aims to draw on the experience of credit institutions in first-wave countries.

58 In April 1998, the Steering Committee published a report on the implications of EMU for the Greek banking sector both before and after entry, outlining the necessary changes. The report indicates that the cost of EMU entry for banks in Greece is likely to be high, as the transition period will be only one year, and there are a number of specific features of the Greek banking system to consider. These include: the high percentage of cash transactions; the relatively low level of automation in most banks; and the need to withdraw and repatriate a relatively large amount of first-wave national notes and coin resulting from tourism.

59 The HBA has recently finalised a detailed plan of action for next year. Amongst other initiatives, the HBA will:

- conclude interbank agreements covering best euro practice;
- co-operate with the Bank of Greece to resolve any legal and technical problems arising from the changeover to the single currency (including preparations for the withdrawal of drachma banknotes and coin during the year 2001); and
- launch a nationwide communication strategy.

60 There is no uniform approach among banks in Greece to the level of services each will provide in euro during the transition period. Some large banks are likely to have all their systems in place by 1 January 2001, while other banks are likely to catch up during 2001. Nevertheless, during the transition period, all bank statements will express amounts in both drachmas and euro.

61 On entry, monetary policy will be conducted in euro and credit institutions' accounts at the Bank of Greece will be converted to euro. As in the first wave, new issues of Government securities will be denominated in euro from entry; and outstanding issues will be redenominated into euro. Redenomination will be based on individual investor holdings, with rounding to the nearest euro cent. Securities will retain existing ISIN codes. The common euro market conventions will be adopted, at least for debt issued after 1 January 2001.

Preparations in the Bank of Greece

62 The Bank of Greece expects to take an active part in the Eurosystem when Greece adopts the single currency, and is preparing accordingly.

- *Legislation* Legal convergence has already been achieved. The independence of the Bank of Greece was enshrined in legislation in 1997.
- *Production of euro notes and coin* The Bank of Greece has compiled a detailed euro cash 'masterplan', including a quantification of the likely scale of demand. Given the inevitably long lead times, production of euro cash will need to begin well in advance of the entry date, but production is unlikely until a decision on entry has been made. The printing works gained useful experience in euro note production late last year when it successfully took part in the ECB's zero production run. Acquisition of the new machinery necessary to produce euro notes and coin is in hand.
- *Distribution of euro notes and coin* The logistics of the cash changeover are being worked out in association with the banks. The aim is for credit institutions to have adequate quantities of euro currency by 30 November 2001.
- *Foreign reserves management* The Bank of Greece is to develop a new system for foreign reserves management, to include front, middle and back office functions for both its share of ECB foreign reserves and its own.
- *Money market operations* Most elements of the Eurosystem operational framework have already been adopted, including standing facilities, reserve requirements based on averaging, and weekly tenders with a maturity of 14 days. Structural money market operations have been introduced this year, analogous to Eurosystem LTROs. Some further changes will be necessary before EMU entry. In particular, the reserve ratio, which is very high (12%) at present as a result of the sizeable structural surplus in the Greek money market, will need to be reduced to the (2%) level prevailing in the Eurosystem.
- *Collateral management* A fully-automated electronic trading system for Government securities, which was established last year and is managed by the Bank of Greece, will provide mark-to-market valuations for collateral which are fully compliant with Eurosystem requirements.
- *RTGS* Since 4 January, the domestic euro RTGS system (EURO-HERMES), has been linked to TARGET, and operating with low volumes. It is expected that an RTGS system for large value payments in drachmas (HERMES) will become operational early next year. From entry, HERMES will process all large-value euro payments.

- *Statistics* Credit institutions already report data to the Bank of Greece in accordance with ESCB reporting standards, and soon data will distinguish between domestic, EMU and non-EMU transactions.
- *Accounting system* The Bank of Greece's internal management accounting system is being revamped, to enable it to submit a balance-sheet compliant with Eurosystem accounting principles and techniques.
- *Information provision* The Bank of Greece is providing information to the general public about the euro.

Sweden

63 The situation in Sweden can be summarised as follows.

- Swedish Government policy on EMU entry can best be described as 'wait-and-see', although preparations are being undertaken in the key sectors in accordance with a Parliamentary decision in 1997. The ruling SDP will decide its future policy on EMU at its March 2000 Congress. The outcome of the Congress remains uncertain. No decisions have yet been taken on the timing of a subsequent referendum and EMU entry, nor on the length of any subsequent transition period post-entry.
- The opinion polls show public opinion for and against EMU entry to be more or less evenly balanced.
- The Sveriges Riksbank (the Swedish central bank) is making technical preparations internally so that it can be ready for EMU entry 12 months after a positive decision. In its preparations, the Riksbank has so far assumed that the earliest possible entry date would be January 2002.

Background

64 In December 1997, Parliament decided that Sweden would not join EMU in the first wave. At the same time, however, it was decided that the option of joining in future should be kept open, both through the conduct of appropriate economic policy and by continuing with 'a high level' of practical preparations. It was also stated in the 1997 EMU Bill that if Government decided in future that Sweden should participate, the issue should be put to the Swedish people.

65 The Government has not publicly stated its standpoint on EMU entry. However, the Government and the SDP launched an information campaign this autumn, and the Prime Minister has recently stated that he sees Swedish entry into EMU as inevitable. The subject of EMU entry will be discussed at a special SDP Congress in March next year. The outcome is currently uncertain, given divided views in the SDP. Even if the Congress is in favour of EMU entry, there are a number of possible options. The quickest scenario would be for a referendum four to six months later, followed by a Parliamentary decision at the end of the year. This would imply EMU entry at the earliest at the start of 2002. However, this seems to have been ruled out in subsequent statements by the Prime Minister. No decisions on the timetable have yet been taken.

66 Recent opinion polls show that views on entry are broadly evenly-balanced, with some 40% in favour, 40% against and 20% undecided. Earlier in 1999, immediately after the successful launch of the euro, the percentage in favour was higher.

Preparations at national level

67 A Reference Group for Sweden's euro preparations was set up by Government in 1997 and is chaired by the Finance Minister. Participants include other ministries, the Sveriges Riksbank, local governments and county councils, representatives from the business community and labour unions. Until late-1998, the Group concentrated on issues relating to Sweden's position outside the euro area, but discussions have since moved on to those relating to possible EMU entry.

68 A National Changeover Plan has not yet been published. However, practical and technical preparations by Government, the financial sector and business are not precluded. Indeed, they are clearly under way. The preparations cover five areas (legislation, the financial sector, the business sector, the public sector and consumer issues) and are co-ordinated by the Ministry of Finance.

69 The 12 major government agencies are instructed to present more detailed plans on lead times by March 2000. Agencies have been spending money as part of their general planning efforts, but no extra funding has been allocated.

Financial sector preparations

70 The Sveriges Riksbank is responsible for the co-ordination of the financial sector's euro preparations, including the exchanges and retail banking, within the overall framework of the Ministry of Finance's plans. The Riksbank chairs a Steering Committee and six specialist sub-committees on monetary and exchange rate policy, payment systems, statistics, legal issues, information and notes and coin. During the period from 1997 to early 1999, the Steering Committee published three reports focusing mainly on financial sector issues related to Sweden as an 'out'.

71 In October, the Riksbank published a fourth report, which concentrates on issues relating to EMU entry. This includes preliminary estimates of the necessary lead times for distinct parts of the financial sector's preparations. No attempt has yet been made to separate out different stages within the overall transition. The lead times (which lie primarily in the range of 6 to 24 months) are to be verified in due course by a more extensive examination. This will include drawing a distinction between those changes which must be made before entry and those which may be completed after entry.

- The Riksbank estimates that it would need 12 months from a decision on participation to prepare all its necessary functions for full integration with the Eurosystem.
- The banks estimate 18 months would be required to implement their own preparations, with prior planning.
- The Stockholm Stock Exchange has already carried out the essential changes required for equity trading in euro. Companies wishing to change to the euro must

provide at least 3 months' notification, to allow information distributors and market agents to make the necessary system changes.

- The Swedish CSD has also carried out extensive adjustments to its main systems, so that issuance and trading of securities, and the associated clearing and settlement, may take place in euro. The remaining changes for EMU entry mainly relate to the redenomination of existing debt in krona to euro. According to the CSD, this could be carried out within 6 months.
- The National Debt Office estimates that it would need 12 months to change over. It believes changes to the law would be needed to allow redenomination, as well as to adjust the conventions used in Swedish bond loans to the new standard euro conventions.
- The Swedish Mutual Fund Association believes that its members' activities can change over technically to the euro in 3 to 6 months, although the necessary education and staff training would take longer.
- The Swedish Securities Dealers' Association considers that securities firms would require 12 months to prepare after a Swedish decision on entry.
- The Swedish Insurance Federation estimates that lead times for insurance companies generally vary between 18 and 24 months.

Preparations in the Sveriges Riksbank

72 The Sveriges Riksbank has made a number of statements explicitly in favour of EMU entry. It has stated that, in the event of a decision to participate, the Riksbank's final technical preparations could be completed within a period of 12 months. The Riksbank's internal preparations mirror the work and structure of the national effort. The most important areas to prepare are as follows.

- *Operational framework* In 1994, the Riksbank introduced weekly repo operations; and standing facilities provide a corridor for overnight market interest rates. However, EMU entry would necessitate a number of further changes.
  - The Riksbank would have to apply Eurosystem reserve requirements. The Riksbank has the statutory power to do so and to collect the necessary statistics, but reserve requirements have not been in use since 1994. Reserve accounts would need to be established at the Riksbank, and banks in Sweden would need to become familiar with the behavioural implications of averaging.
  - The Riksbank's current fine-tuning operations to supplement its regular refinancing tenders would cease.
  - The maturity of the refinancing operations would have to be extended from one to two weeks; and the Riksbank would need to introduce the longer-term refinancing facility.
  - Only domestic assets are currently accepted as collateral in Riksbank operations. Besides Government debt, the list includes a large stock of mortgage-backed assets (MBAs). The Riksbank does not accept shares or bank

loans. It would need to establish facilities to enable counterparties to use the full range of ECB eligible assets.

- The Riksbank operates through primary dealers both in the money market and in the foreign exchange market. EMU entry would mean a large increase in the number of potential counterparties for monetary policy operations (up to 220 credit institutions), but the Riksbank believes that the number of active counterparties is likely to remain limited.

- *Payment systems* Sweden currently has separate RTGS systems for krona (K-RIX) and euro (E-RIX). Both systems are S.W.I.F.T.-based, but K-RIX has some additional domestic functionality which would be required were the euro to become the Swedish domestic currency.
- *Euro notes and coin* In the event of EMU entry, the Riksbank would be responsible for meeting Sweden's requirements for euro banknotes and coin, but would not necessarily use its own printing presses or mint. It is estimated that the technical preparations would require about 12 months for banknotes and 6 months for coin, while the necessary changes to the law might take longer. The actual production time is calculated at 12 months for both banknotes and coin. The logistics of distribution are under discussion between the Riksbank and the rest of the financial sector.
- *Legal changes* Although new central bank legislation came into effect at the start of 1999, *inter alia* to increase the independence of the Riksbank, further changes to the Central Bank Act would be required to integrate the Riksbank fully into the Eurosystem. In addition, various internal regulations in the Riksbank would have to be prepared, including agreements with counterparties.
- *Accounting systems* Major changes would also be required to the Riksbank's accounting systems. Since some changes are regarded as highly desirable in their own right, and long lead times are involved, this project would have to start at a relatively early stage.

SOME INTERNET ADDRESSES

UK official	
Bank of England: *euro*	http://www.bankofengland.co.uk/euro
Bank of England: *Practical Issues*	http://www.bankofengland.co.uk/euro/piq.htm
DTI: *euro*	http://www.dti.gov.uk/europa/pagea.html
HM Treasury: *euro*	http://www.euro.gov.uk
Inland Revenue: *euro*	http://www.inlandrevenue.gov.uk/leaflets/euro.htm
European Union institutions	
ECB	http://www.ecb.int
ECB: *List of useful websites*	http://www.ecb.int/change/colist.htm
Economic and Finance Committee Group on EU Government bills and bonds	http://europa.en.int/comm/dg02/EFC/index.htm
European institutions (general)	http://europa.eu.int/index.htm
European Commission	http://europa.eu.int/index_en.htm
European Parliament	http:/www.europarl.eu.int
Accounting	
FEE	http://www.euro.fee.be
IASC	http://www.iasc.org.uk
ICAEW	http://www.icaew.co.uk
National central banks	
Austria	http://www.oenb.co.at/english/euroe_p.htm
Belgium	http://www.bnb.be/sg/index.htm
Denmark	http://www.nationalbanken.dk
Finland	http://www.bof.fi/env/kasi/lista.stm
France	http://www.banque-france.fr/
Germany	http://www.bundesbank.de/de/presse/wwu/eurokommt.htm
Greece	http://www.bankofgreece.gr/
Ireland	http://www.centralbank.ie/
Italy	http://www.bancaditalia.it
Luxembourg	http://www.bcl.lu
Portugal	http://www.bportugal.pt/document/frdocument_p.htm
Spain	http://www.bde.es/ume/ume.htm
Sweden	http://www.riksbank.com
The Netherlands	http://www.dnb.nl/
Custodians	
Chase Manhattan	http://www.chase.com
Citibank	http://www.citicorp.com
Paribas	http://www.paribas.com

Exchanges and market associations

AUTIF	http://www.investmentfunds.org.uk
Amsterdam Exchanges	http://www.aex.nl
BBA	http://www.bba.org.uk
Belgian Bankers' Association	http://www.abb-bvb.be/euro
Brussels Exchanges	http://www.bourse.be
Brussels Stock Exchange	http://www.bourse.be
Copenhagen Stock Exchange	http://www.xcse.dk
Deutsche Börse Group	http://www.exchange.de/INTERNET/EXCHANGE/index.e.htm
EFFAS	http://www.effas.org
Eurex	http://www.eurexexchange.com/
European Banking Federation	http://www.fbe.be
European Bond Commission	http://www.ukbc.org.uk
FIA	http://www.fiafii.org/
FISD	http://www.siia.net/program/fisd/
French Banking Association	http://www.afb.fr
FTSE International	http://www.ftse.com
German Banking Association	http://www.bankenverband.de
Helsinki Exchanges	http://www.hex.fi
IFMA	http://www.ifma.org.uk
IIMR	http://www.iimr.org.uk
ISDA	http://www.isda.org
Italian Association of Private Banks	http://www.assbank.it
Italian Stock Exchange	http://www.borsaitalia.it
LIFFE	http://www/liffe/com
Lisbon Stock Exchange	http://www.bvl.pt/
London Stock Exchange	http://www.stockex.co.uk
Luxembourg Stock Exchange	http://www.bourse.lu/
MATIF	http://www.matif.fr
Madrid Stock Exchange	http://www.bolsamadrid.es
Securities Industry Association	http://www.sia.com/
Stockholm Stock Exchange	http://www.xse.se
Swiss Exchange	http://www.swx.com/top/index_en.html
Vienna Stock Exchange	http://www.wbag.at/

Information providers

Bloomberg	http://www.bloomberg.co.uk
Datastream/ICV	http://www.datastream.com
Extel	http://www.Info.Ft.Com
Reuters	http://www.reuters.com
Telekurs	http://www.telekurs-financial.com

Information technology

British Computer Society	http://www.bcs.org.uk

Payment and settlement

APACS	http://www.apacs.org.uk
including CHAPS euro	http://www.apacs.org.uk/chapseuro.htm
Cedelbank	http://www.cedelinternational.com/
CRESTCo	http://www.crestco.co.uk
EAF	http://www.eaf.de
EBA	http://www.abe.org
Euroclear	http://www.euroclear.com
Sicovam	http://www.sicovam.com
S.W.I.F.T.	http://www.swift.com

Regulatory organisations

FSA	http://www.fsa.gov.uk
IMRO	http://www.imro.co.uk
SFA	http://www.sfa.org.uk

HAS HE PASSED HER FIVE KEY ECONOMIC TESTS?