Practical issues arising from the €euro

November 2002

Bank of England

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5 FOREWORD

7 PART I: THE UK'S PERFORMANCE AS A EURO FINANCIAL CENTRE

7 INTRODUCTION

7 A: WHY THE UK'S PERFORMANCE AS A EURO FINANCIAL CENTRE MATTERS

8 *Box: International use of the euro*

10 B: THE DEVELOPMENT OF THE EURO MARKETS

10 Integration of euro trading and settlement
11 Growth of securities issuance
14 Diversification of investment
15 Consolidation of international market firms
16 Changes in regulation and supervision

17 C: THE UK'S EURO MARKET SHARE

17 The UK
18 The euro area
18 *Box: Financial centres in Europe: changes in market share*

26 D: THE LOCATION OF MARKET FIRMS

26 Treasury and risk management
26 Trading
26 Capital markets
27 M&A
27 Fund management
27 Research
27 Settlement processing

28 E: INFLUENCES ON CHOICE OF LOCATION

28 Global influences on competition
28 Critical mass of expertise
29 Financial infrastructure
30 Regulatory framework
31 Taxation
31 Physical infrastructure
31 Language, learning, law and culture

33 PART II: CITY GUIDE TO A UK EURO CHANGEOVER

33 A: STERLING FINANCIAL MARKETS

34 Financial instruments issued before, and outstanding at, entry
34 (i) Nominal values
37 (ii) Cash-flow payments
38 (iii) Market conventions
39 New financial instruments issued after entry
39 (i) Nominal values and cash payments
39 (ii) Market conventions
40 Financial transactions undertaken before entry but settled afterwards
42 Financial transactions undertaken after entry
43 Responsibility for conversion
44 *Box: Bank of England preparations: summary*

46 B: WHOLESALE/RETAIL INTERDEPENDENCIES: TECHNICAL ISSUES

46 *Box: Banking services under a managed transition*
49 Gilt and equity transactions
50 Gilt coupons and redemptions
51 UK companies' dividends and share capital
52 Guidelines to help UK companies
52 (i) Timing of share capital redenomination
53 (ii) Declaration and denomination of dividends
53 (iii) Methods of redenominating company share capital
55 *Box: Methods of redenominating company share capital: an example*
56 (iv) Share option schemes
57 Interest day-count conventions
58 *Box: Interest day-count conventions*

59 *Box: UK euro changeover: summary*

63 Glossary

65 Some internet addresses

69 Cartoons by Basil Hone

† Reference in the text to a technical term described in the glossary

FOREWORD

1 This edition of *Practical Issues*, the eighteenth since we began in May 1996, is in two parts:

- the UK's performance as a euro financial centre; and
- a City guide to a UK euro changeover.

The UK's performance as a euro financial centre

2 Part I reports on the UK's performance as a euro financial centre since the launch of the euro at the beginning of 1999. This is the latest in a series of reports published in *Practical Issues*.

3 The report considers: why the UK's performance as a euro financial centre matters; how the euro markets have developed; whether the UK's market share has changed; where market firms have located their euro activities; and what the main influences have been on market firms' choice of location.

4 The report is limited to describing and explaining the evidence to date. It does not consider the potential impact, on the competitive position of UK financial services, of UK entry into EMU, which will be assessed by the Government. Nor does the report pre-empt the preliminary and technical work which will be published alongside the Government's assessment.

City guide to a UK euro changeover

5 Part II consists of a City guide, which is intended for use by practitioners in sterling financial markets in their preparations for possible UK entry to EMU. It is in two sections: the changeover in sterling wholesale financial markets, if the UK joins EMU; and the interdependencies between wholesale and retail markets during the transition period after UK entry.

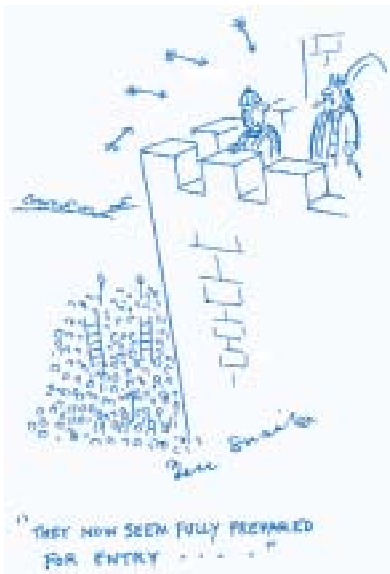
6 The City guide, which updates guidance given in previous *Practical Issues*, has been drawn up in consultation with market practitioners in the City Euro Group. The guide will continue to be revised and updated, as more information becomes available.

Other information

7 The Bank of England welcomes comments on *Practical Issues*, which should be addressed to Bill Allen, Director for Europe, Bank of England, Threadneedle Street, London EC2R 8AH (fax no: 020-7601 4404; e-mail: bill.allen@bankofengland.co.uk). *Practical Issues* is available in hard copy from the Bank's Public Enquiries Group (tel no: 020-7601 4012; fax no: 020-7601 5460; e-mail: enquiries@bankofengland.co.uk); and on the Bank's website (www.bankofengland.co.uk), including, in some previous editions, limited additional material.

Tribute to Basil Hone*

HAS HE PASSED HER FIVE KEY ECONOMIC TESTS?



"THEY NOW SEEM FULLY PREPARED FOR ENTRY . . . ."

LOOKING FORWARD TO CONVERSION WEEKEND?

WILL THERE EVER BE EUROS IN THE CHRISTMAS PUDDING?

"I'M LOOKING FORWARD TO HEARING JOHN TOWNEND'S INSIGHTS ON THE EURO"

* who has been prevented by illness from making his usual contribution to *Practical Issues*.

PART I: THE UK'S PERFORMANCE AS A EURO FINANCIAL CENTRE

INTRODUCTION

1 The purpose of Part I of *Practical Issues* is to report on the UK's performance as a euro financial centre since the launch of the euro at the beginning of 1999. This is the latest in a series of reports on the UK's performance as a euro financial centre published in *Practical Issues*.

2 Part I is set out in five sections, which consider:

- first, why the UK's performance as a euro financial centre matters;
- second, how the euro markets have developed;
- third, whether the UK's market share has changed;
- fourth, where market firms have located their euro activities; and
- finally, what the main influences have been on market firms' choice of location.

The report is limited to providing and explaining the evidence to date. It does not consider the potential impact, on the competitive position of UK financial services, of UK entry into EMU, which will be assessed by the Government. Nor does the report pre-empt the preliminary and technical work which will be published alongside the Government's assessment.

A WHY THE UK'S PERFORMANCE AS A EURO FINANCIAL CENTRE MATTERS

3 There are three main reasons why the UK's performance as a euro financial centre matters.

- First, financial services make a significant contribution to the UK economy: about 5% of GDP in 2001. Over half of the total contribution to UK GDP can be attributed to the City of London[1], which generated net exports of financial services of over £13 billion in 2001. Before the recent stock market downturn, the Corporation of London estimated that around 343,000 people were employed in financial services in London.
- Second, the financial services industry in the UK depends on its international business. Historically, the City developed as a financial centre because of the international role of sterling. But for a long time now, the City's role has depended heavily on making markets and providing financial services in foreign currencies. Many market firms[2] in the City are foreign owned and internationally oriented. While most international market firms have been based in the City for many years, they could move some or all of their activities abroad quickly if they concluded

1 UK financial activity in wholesale markets is largely conducted in 'the City', broadly defined here to include the Square Mile, Canary Wharf and the rest of London. Edinburgh and Glasgow also play a significant role, particularly in institutional fund management.

2 Defined here to include commercial banks, investment banks, securities firms, fund management companies and others involved in wholesale financial markets on behalf of institutional, corporate and retail clients.

that the City was no longer internationally competitive. Market firms are located in the City because they find it competitive to do business there.

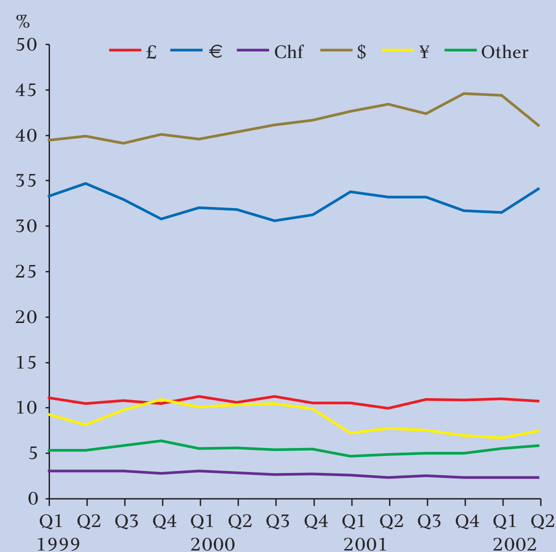
- Third, the euro has made a significant contribution to UK market firms' international business, though they do not consider their euro business in isolation, but as part of their international activities as a whole. The euro's contribution is important, partly because it is the second most widely used currency internationally, though some way behind the dollar (see box); and partly because there have been substantial business opportunities for market firms arising from the development of the euro markets. This is described in Section B.

INTERNATIONAL USE OF THE EURO

The euro is the second most widely used currency internationally, though some way behind the dollar on most measures. The euro's international use has not so far changed significantly in most markets since its launch, though in some markets, such as international bonds and credit derivatives, its use has grown substantially.

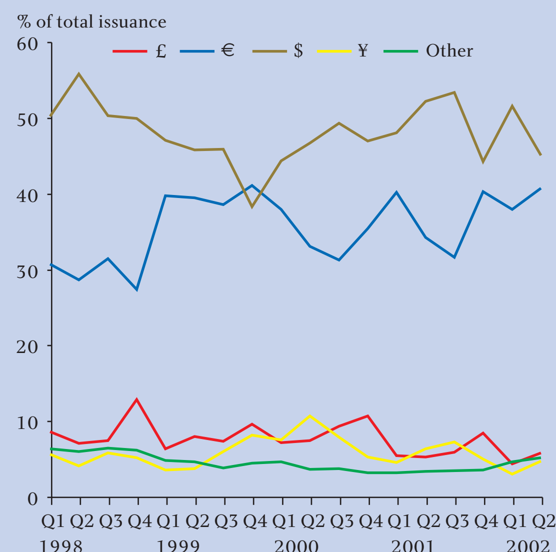
- *Official reserves* The IMF estimates that around 13% of the official foreign exchange reserves of its member countries was denominated in euro at the end of 2001. This compares with 68% for the dollar, 5% for the yen, 4% for sterling, 1% for the Swiss franc and 9% not specified by currency. There has been no significant change in the euro proportion since the beginning of 1999.
- *Exchange rate links* Apart from the 12 euro-area countries, around 40 other countries or territories either use the euro or have exchange rates pegged to the euro.
- *International trade* It is estimated that around half of the euro area's external trade is denominated in euro.
- *Foreign exchange* The BIS Triennial Survey shows that, in April 2001, the euro was used on one side of 43% of foreign exchange transactions by value – a slightly higher proportion than the Deutsche mark in April 1998 – while the dollar was used in 85% and the yen in 26%. (The total sums to more than 100%, as two currencies are involved in each transaction.)
- *Derivatives* The BIS estimates that the proportion of over-the-counter (OTC) interest rate derivatives denominated in euro rose to 34% at the end of 2001 from 32% at the end of June 1999. Over the same period, the proportion denominated in dollars rose to 35% from 30%.
- JPMorgan estimates that, in the first half of 2001, 60% of its credit derivatives contracts relating to European-based companies were denominated in euro, against 35% in dollars. This compares with 10% in Deutsche marks, 10% in sterling and 80% in dollars in 1998. However, use of the euro has scarcely increased in the market outside Europe.
- *International banking* The BIS estimates that 18% of international bank assets were denominated in euro at the end of March 2002, compared with 65% in dollars and 5% in yen. Since the euro's launch, the proportions in euro, dollars and yen have remained broadly unchanged.

CHART 1: UK BANKS' BUSINESS WITH NON-RESIDENTS



Source: Bank of England

CHART 2: ISSUANCE OF INTERNATIONAL BONDS AND NOTES BY CURRENCY



Source: BIS Quarterly Review

- Some 34% of UK banks' business with non-residents at the end of June 2002 was denominated in euro, compared with 41% in dollars, 11% in sterling and 7% in yen. Since the end of March 1999, the proportion of lending denominated in euro has increased by around one percentage point (Chart 1).
- Some 23% of UK banks' total business at the end of September 2002 was denominated in euro, compared with 19% at the beginning of 1999.
- *International capital markets* The BIS estimates that the euro's share of international bond and note issuance in 2001 was 36%, against 49% in dollars. This compares with 29% in legacy currencies† in 1998, when 51% was in dollars (Chart 2).
- *International fund management* *The Economist* poll of seven international fund managers indicates that, on average in 2002Q2, they held 40% of their portfolios in bonds and 53% in equities. Their bond portfolios were invested 28% in euro-denominated bonds, compared with 50% in dollars, 14% in yen and 5% in sterling. Their equity portfolios were invested 23% in continental Europe, compared with 50% in the US, 10% in Japan and 10% in the UK.

B THE DEVELOPMENT OF THE EURO MARKETS

4 Over the past four years, the euro markets have generally grown in size and improved in efficiency, partly reflecting global influences such as deregulation and new technology. Market firms in the UK have participated in the development of the euro markets by providing deep, liquid and innovative markets in London. The main developments can be considered under five heads:

- integration of euro trading and settlement;
- growth of securities issuance;
- diversification of investment;
- consolidation of international market firms; and
- changes in regulation and supervision.

5 These developments have attracted comparatively little public attention, which has been focused instead on changes in market prices: initially, the weakness in the euro against the dollar in the foreign exchange market, though the euro has since partially recovered; and subsequently, the sharp downturn in equity market prices, accompanied by a rise in corporate credit spreads.

Integration of euro trading and settlement

6 The unsecured interbank deposit market in euro is supported by two pan-European payment systems: TARGET†, which links the 15 national euro-denominated real-time gross settlement (RTGS†) systems in the EU; and the EBA's net settlement system (EURO1). These pan-European payment systems allow commercial banks to manage euro liquidity in a single pool, so as to obtain efficiency savings and cost benefits.

7 The unsecured euro money markets are fully integrated, and more liquid than the legacy markets they have replaced.

- Short-term euro interest rates are effectively identical across the euro markets, including those in London. And there is a common money market reference yield curve: overnight, this is based on EONIA†; and beyond overnight, on EURIBOR†.
- Over half of euro interbank transactions by large banks in the euro area and in London take place across borders rather than domestically.
- There has been a large increase in the number of transactions in EURIBOR futures and EONIA swaps.
- Dealing spreads have narrowed in the money, swap and foreign exchange markets, especially where electronic trading has developed. The BIS estimates that bid-ask spreads on three month interbank euro deposits were 40% narrower in 2000 than on legacy currencies in 1996. Dealing sizes have also increased in some markets (eg EONIA swaps).
- Foreign exchange turnover has declined: the BIS Triennial Survey shows that global turnover in euro was over 40% lower in April 2001 than in legacy currencies three years earlier. This can probably be attributed to the replacement of the

legacy currencies by the euro, consolidation in the banking industry and the growing use of efficient electronic trading systems, where most interbank trading is now carried out.

8 By contrast to the unsecured euro money markets, trading in the secured euro money markets is not yet fully integrated, mainly because it is still not as quick or easy to deliver collateral across borders as within them. Even so, cross-border repo turnover has increased significantly. Turnover has also increased and dealing spreads have declined in the case of some outright securities transactions, such as benchmark government bonds. Euro-area government bonds are increasingly being traded on a pan-European basis, supported by the emergence of electronic platforms, such as BrokerTec and EuroMTS. Most transactions can be cleared through a single central counterparty† (eg LCH) and settled in one of the international central securities depositories (ie Euroclear or Clearstream).

9 While government bonds are increasingly traded on pan-European platforms, equity trading still takes place predominantly on national exchanges, partly because equities are much more diverse, partly because local name recognition is still important, and partly because national listing rules are more complex for equities and in some countries require stocks to be traded on national exchanges. However, the dependence on national exchanges has been changing in a number of ways: through international listing and trading – for instance, 61% of equity turnover on the London Stock Exchange in the first nine months of 2002 was in foreign equities; through mergers between exchanges, as with both Euronext and virt-x; and through the emergence of electronic platforms, such as Instinet and Posit.

10 An integrated European capital market does not require a single trading platform for all securities, so long as national trading platforms are accessible to market firms across the EU, and globally. In principle, this allows market firms to trade remotely from a single location. But some market firms are concerned about national rules which effectively require them to maintain local presences and use local trading or settlement systems.

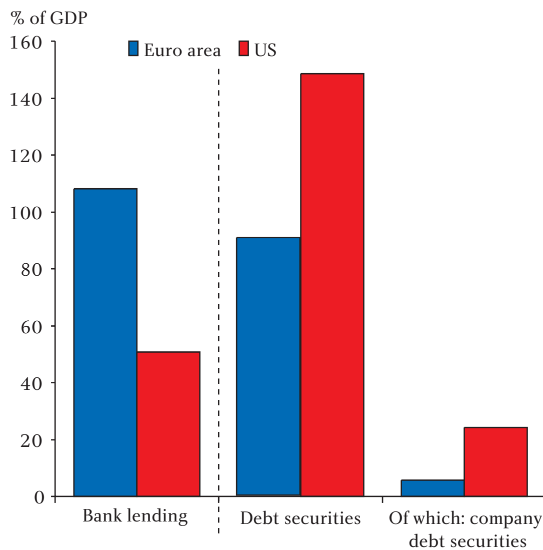
11 The costs of settling purely domestic securities transactions in Europe are competitive by international standards. But the costs of settling securities transactions across borders are typically more expensive, because of higher direct costs, fewer opportunities for netting and additional back-office costs to cope with different legal and technical systems. While there is agreement about the scope for reducing costs by integrating clearing and settlement systems across Europe, legal and technical obstacles mean that integration will take time. However, integration has begun, with two main groups emerging: Clearstream International, which was formed in January 2000 by the merger between Cedel International and Deutsche Börse Clearing, and which has recently been fully acquired by Deutsche Börse Group; and Euroclear, which is bringing together its international business and the settlement of Belgian, Dutch, French, Irish and, most recently, the UK securities markets.

Growth of securities issuance

12 Historically, the structure of financial markets in continental Europe has been different from that in the US. In continental Europe, companies have tended to borrow predominantly from banks, whereas in the US they have tended to issue tradable securities to investors. So bank lending in the euro area (some 108% of GDP at the end of 2001) is

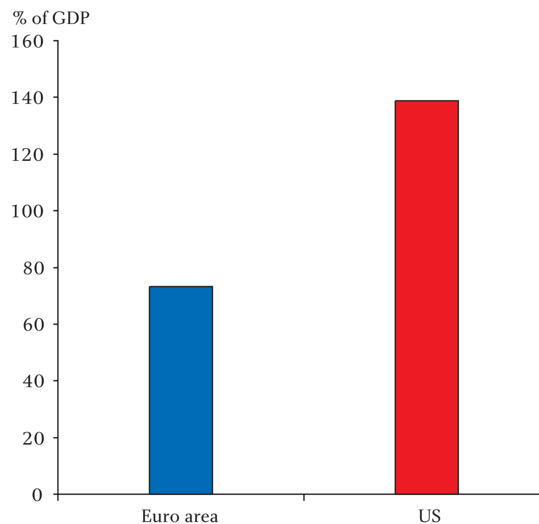
significantly greater than in the US (51%), whereas the value of debt securities outstanding in the euro area (91% of GDP) is much smaller than in the US (149%), especially those issued by companies (6% of GDP in the euro area against 24% in the US) (Chart 3). And the equity market capitalisation of companies in the euro area (73% of GDP at the end of 2001) is much lower than companies in the US (139%), with only half as many stocks in issue in the euro area as in the US (Chart 4).

CHART 3: DEBT OUTSTANDING IN THE EURO AREA AND US



Note: end-2001
Source: European Commission

CHART 4: STOCK MARKET CAPITALISATION IN THE EURO AREA AND US



Note: end-2001
Source: European Commission

13 *Government issuance* Under the Stability and Growth Pact, net debt issuance by governments in the euro area is limited. Gross issuance (including the refinancing of maturing issues) declined from €538 billion in 1998 to €522 billion in 2001 (Chart 5). Since the launch of the euro, competition among government issuers has intensified, as they have no longer been able to rely on a national currency investor base. The larger issuers compete for benchmark status – ie their bonds are of high credit quality, liquid and widely traded – so as to attract institutional investors from across the euro area and beyond. Given the removal of currency risk, yield differentials have generally been less than 40 basis points, reflecting the market's perception of differences in credit risk and liquidity.

14 *Corporate debt issuance* While debt issuance by governments has been limited, non-government euro bond issuance has grown substantially since the launch of the euro, from €569 billion in 1998 to €866 billion in 2001 (Chart 5).

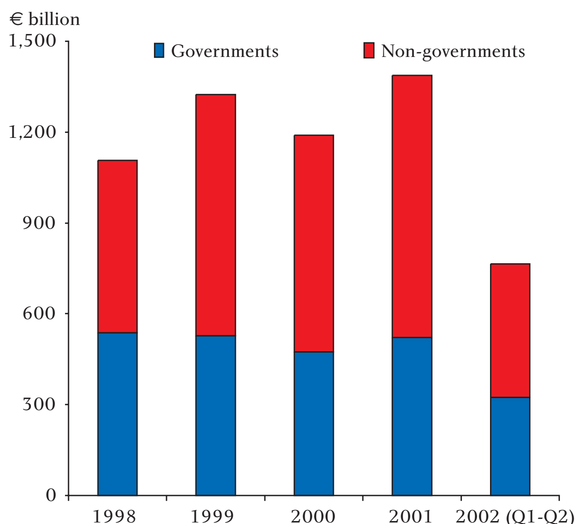
- The largest component of non-government bond issuance consists of Pfandbriefe (collateralised securities issued by banks, particularly in Germany), though (non-bank) corporate bond issuance has been growing at a faster rate, rising from 7% of the total (in 1998) to 22% (in 2001). However, recently, corporate issuance – particularly of high yield bonds – has been held back by corporate failures and

changing investor perceptions, which have also been reflected in the equity market downturn.

- Starting from a low level in comparison with the US, a growing number of companies in Europe have sought and received credit ratings, so as to reduce the cost of their funding and facilitate the distribution of securities across borders, where name recognition is lower than in the local market.
- Competition among market firms has driven average fees on new euro bond issuance towards the level for dollar issues.
- At times over the past four years, total non-sovereign international bond issuance in euro has been almost as high as in dollars. An increasingly wide spread of institutional investors in Europe has been prepared to accept corporate credit risk.
- Issuers have also made more use of commercial paper, asset-backed securities and other forms of securitisation in euro.

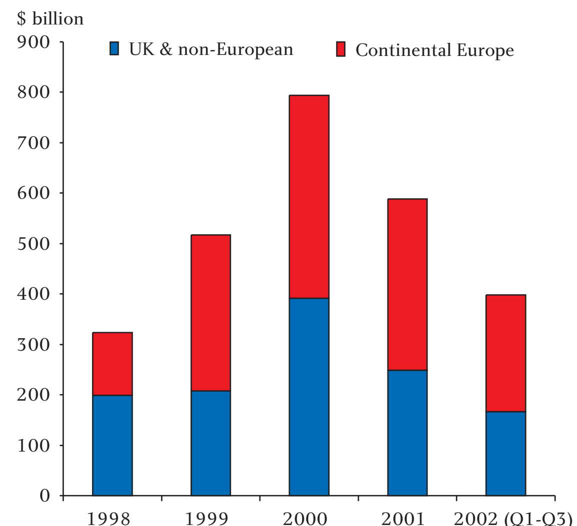
15 *Syndicated bank lending* Although issuance of corporate bonds has grown over the past four years, it remains a relatively small proportion of finance for companies in the euro area. Bank lending still makes a much larger contribution – particularly international syndicated bank loans, which can be drawn down in a variety of currencies. When the euro was launched, it was widely expected that bond issuance would replace syndicated bank lending as a key source of financing for European corporate borrowers. But in practice, use of syndicated bank loans has continued to grow, particularly to finance corporate restructuring, because of its characteristics of confidentiality, certainty of funding, speed of execution and flexibility in structure and pricing. Total international syndicated bank lending grew from $323 billion equivalent in 1998 to $590 billion in 2001, with the share of continental European borrowers increasing from 39% to 58% of the total (Chart 6).

CHART 5: EURO-DENOMINATED BOND ISSUANCE



Source: Barclays Capital, Dealogic

CHART 6: SYNDICATED INTERNATIONAL BANK LENDING

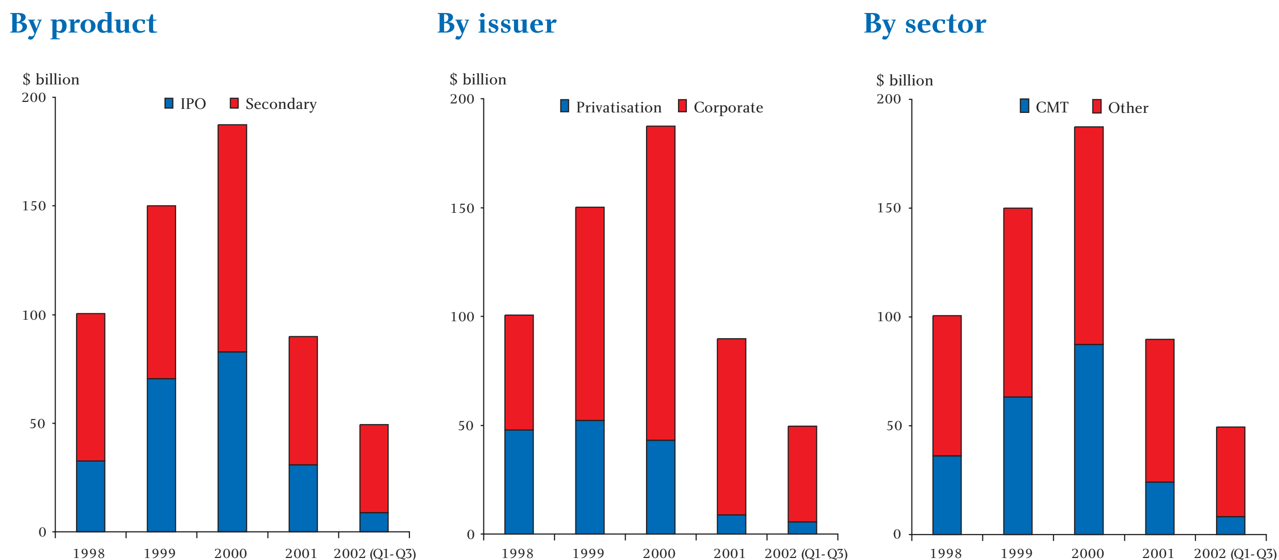


Source: Barclays Capital, Dealogic

16 *Credit derivatives* In response to the wider range of corporate names traded in the euro-denominated bond and loan markets, there has been a significant improvement in the liquidity of the market for European credits through credit default swaps. JPMorgan has estimated that, whereas in 1998 80% of its credit derivatives contracts on European-based company credits were denominated in dollars, in the first half of 2001 the dollar's share fell to 35%, while 60% of contracts were denominated in euro.

17 *Equity issuance* New equity issuance in Europe grew from $100 billion in 1998 to $187 billion in 2000, stimulated by favourable stock market conditions and by M&A activity within – and to some extent across – borders (Chart 7). In 2000, around 24% of all European M&A involved cross-border transactions within Europe, while 35% were purely domestic European transactions and 41% were transactions with companies outside Europe (Chart 8). By contrast, over the past two years, equity issuance and M&A activity, both in Europe and elsewhere, have declined substantially as a result of the sharp fall in global equity markets. European equity issuance fell to $90 billion in 2001 and $49 billion in the first three quarters of 2002. However, trading levels and liquidity in the equity market have continued to be relatively buoyant.

CHART 7: EUROPEAN EQUITY ISSUANCE

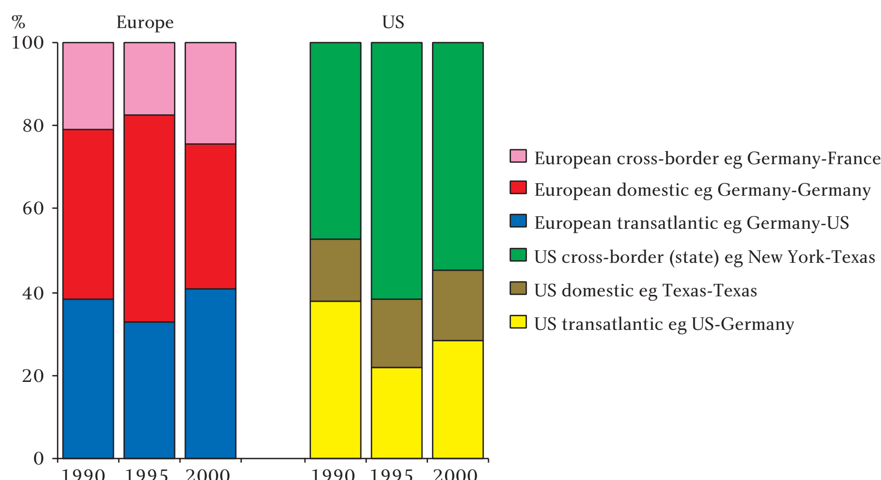


Note: European issuance (including the UK), excluding units, preference shares, rights issues, funds; CMT = communications, media and technology
Source: Dealogic

Diversification of investment

18 The introduction of the euro has encouraged a shift (or 'rebalancing') in portfolio investment, away from the particular national market in which funds have traditionally been invested, towards investment across the euro area as a whole. This helps to explain the increasing use by fund managers of European – rather than national – benchmark indices against which to measure investment performance. However, in practice, diversification has been relatively slow, both in bond and equity portfolios, partly because market conditions have been volatile, partly because fund managers tend to know their own national markets

CHART 8: REGIONAL BREAKDOWN OF M&A ACTIVITY



Source: Thomson Financial (2001)

best, and partly because they generally diversify by investing new money rather than switching existing assets.

19 Market firms hope to benefit from the scope for diversification arising from the flow of funds becoming available for investment from private sector savings and pension provision. Over half of EU pension fund assets are accounted for by pension funds in Ireland, the Netherlands and the UK, where privately funded pensions are well established. Some other European countries have been reviewing their 'pay as you go' state pension schemes. This is because the burden is increasing as birth rates are falling, early retirement is becoming more common and life expectancy is increasing, with the effect that the proportion of people in the workforce is falling. Currently, there are four people in work for every pensioner. By 2040, based on a range of assumptions, the ratio is expected to be two to one. Possible ways of reducing the burden on the taxpayer include: increasing the retirement age; reducing state benefits; and encouraging a shift to funded private sector provision. They should help bridge the gap between pension needs and the pension funds currently available to meet them.

Consolidation of international market firms

20 *Wholesale markets* A number of international market firms have merged so as to be in a better position to provide financial services to their international clients. The euro has clearly influenced this process of consolidation, though the motives for mergers are complex and there are many other factors at work. The degree of concentration varies in different sectors of the market. It is far advanced in investment banking, where critical mass is of particular importance to profitability, though some investment banks have achieved this without making acquisitions. An increasing market share has been won by a relatively small number of market firms.

- Three quarters of foreign exchange transactions in London were carried out by 17 market firms in 2001, as opposed to 24 in 1998.

- The top five investment banks were lead managers for around one half of international bond issues in euro by European corporates in 2001 by value.
- The top three investment banks were involved on one side or the other in almost two thirds of European M&A transactions in 2001 by value.

21 *Retail financial services* By contrast to wholesale financial services, which are provided on a pan-European basis, retail financial services in Europe are still segmented largely along national lines. Mergers involving commercial banks have not so far changed this picture. While bank mergers in the EU have continued, around three quarters of these constitute domestic mergers between retail banks, or between banks and insurance companies. So far, there have been few sizeable retail bank mergers across borders. Significant hurdles need to be overcome: local customers tend to identify with local banks; differences persist in national consumer and competition laws; and the scope for cost savings is generally not as great as in the case of domestic mergers, where there are often overlapping branch networks.

Changes in regulation and supervision

22 Much has already been done to remove obstacles to the integration of Europe's capital markets. Transactions across borders have grown substantially, as a result. While regulation does not need to be uniform across the Single Market, the launch of the euro has served to highlight the remaining barriers and discrepancies between national regulatory regimes. The EU Financial Services Action Plan is a set of 42 specific further measures intended to create a Single Market in financial services. Its key measures include:

- a single set of international accounting standards across the EU;
- a clear distinction between the degrees of regulation appropriate for professional and retail investors;
- a 'single passport' for issuers so that, once an issuer meets prospectus requirements in one country, the issuer can offer its securities across the EU, though it must meet continuing disclosure requirements thereafter; as well as
- the new Collateral Directive to provide greater legal certainty about the validity and enforceability of collateral backing transactions across borders.

23 To assist the effective adoption of EU legislation for the securities markets, a faster track decision-making procedure was recommended by the Lamfalussy Committee and endorsed by the Stockholm European Council in March 2001. The Council of Economic and Finance Ministers has recently considered proposals to extend this approach to legislation on banking and insurance, and the Commission is currently carrying out a consultation. There is agreement that cooperation between national supervisors and central banks needs to be enhanced in response to the continuing development of the euro markets. Central banks – whatever their supervisory responsibilities – need sufficient and timely access to information to help them assess financial stability.

C THE UK'S EURO MARKET SHARE

24 The City has been heavily involved in the development of the euro markets from the outset. Although the four year period since the launch of the euro is a very short one in which to assess the City's performance, it does include both the end of a long bull market in equities, and subsequently a pronounced bear market. So during the past four years, financial centres have been tried and tested in widely differing market conditions.

The UK

25 The evidence indicates that, since the launch of the euro, the City has maintained its market share (see box).

- *Overall position* The City is a global financial centre, and not just a European centre. Globally, the UK is the largest financial centre for foreign exchange trading, international bank lending, over-the-counter derivatives trading, credit derivatives, Eurobond issuance and trading, foreign equity listings and trading, fund management of institutional equities, and internationally traded insurance and reinsurance.
- *Changes in market share* Since the launch of the euro, the City's market share has remained broadly unchanged in wholesale euro payments, foreign exchange trading, international bank lending, Eurobond issuance and trading, foreign equity trading, over-the-counter derivatives trading, and short-term interest rate (STIR†) trading on LIFFE. While the Bund contract† on LIFFE was repatriated from London to Frankfurt in 1998, more trading on Eurex is now conducted from the UK by remote access than in Germany. There is little indication of any deterioration in the City's share of other markets, except foreign equity listings, where the London Stock Exchange still has much the largest market share.
- *Changes in market size* Changes in the City's market share need to be distinguished from changes in market size. Some euro market sectors have grown in size, like corporate bond issuance and over-the-counter derivatives trading; others have declined, like foreign exchange trading (owing to new technology, consolidation among market participants and the elimination of the legacy currencies), and fund management of institutional equities (owing to falling stock markets).
- *People* The number of foreign banks represented in London has declined, owing to the consolidation of financial activity into a smaller number of larger market firms and the withdrawal of some Japanese banks for domestic reasons. But the number of people employed by market firms had increased substantially until the recent equity market downturn. London has remained one of the first locations for expanding market firms to enter, and one of the last locations for retrenching market firms to leave.

Through Edinburgh and Glasgow, Scotland makes an important contribution to the UK financial services industry. While most of its financial activity is domestic, Scotland has become one of the leading fund management centres in Europe, with the equivalent of £326 billion under management at the end of 2001.

The euro area

26 Since the launch of the euro, Frankfurt and Paris have remained much the largest financial centres within the euro area, though wholesale financial activity is more centralised in France than in Germany, where several large financial institutions are based in other centres, such as Munich.

- There is some evidence (eg from euro payments traffic and euro derivatives transactions) that, since the launch of the euro, cross-border business has on balance migrated to Frankfurt, and to a lesser extent to Paris, as well as to London, from smaller financial centres within the euro area.
- Dublin and Luxembourg appear to have maintained their shares of several growing niche markets (eg fund management administration and back-office processing in Dublin; and offshore banking, listing of Eurobonds and administration and marketing of mutual funds in Luxembourg).
- Apart from Frankfurt, Paris, Luxembourg and Dublin, the business of other financial centres in the euro area is primarily domestic, though by no means exclusively so (eg Madrid has close links with Latin America, and Vienna with central and eastern Europe). Amsterdam and Milan are also significant banking and fund management centres within the euro area, and Zurich and Geneva on the euro area's borders.
- The level of activity in euro-area financial centres has been significantly affected by the equity market downturn over the past two years, as it has been in the UK.

FINANCIAL CENTRES IN EUROPE: CHANGES IN MARKET SHARE

Comparing the City's position as a euro centre with other large financial centres in Europe is not straightforward.

- Most of the City's business is conducted in foreign currency (especially euro and dollars), rather than sterling. By contrast, most of the business of Frankfurt and Paris, the largest financial centres in the euro area, is conducted in their domestic currency (ie euro).
- It is not always possible to identify from the available statistics the currency in which business is denominated, making it impractical in some cases to separate the City's euro market share from its global market share.
- Nor is it always possible to distinguish the market shares of London, Paris or Frankfurt from the market share of each country as a whole.

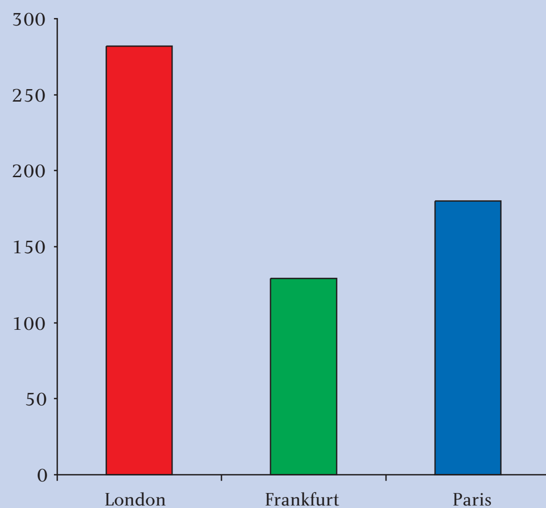
Nonetheless, the figures give a good indication of the overall position, both in the euro and other markets.

Foreign banks

- At the end of September 2002, there were 282 foreign bank subsidiaries and branches in London, compared to 180 in Paris at the same date and 129 in Frankfurt at the end of March 2002 (Chart 9). Of the 282 foreign bank subsidiaries and branches represented in London, 100 were from the rest of the EU. In addition to foreign bank subsidiaries and branches, there were around 160 representative offices of foreign banks in London.

- The number of foreign banks operating in London has fallen by 50 since the end of 1998 – mainly as a result of mergers and the withdrawal of some Japanese banks. The number of banks represented in London from the rest of the EU has fallen by 10, mainly as a result of mergers.
- However, until recently, the number of people employed by market firms in London continued to increase, with activity concentrated in a smaller number of large market firms. For example, while the total number of foreign bank subsidiaries and branches in London recorded in surveys by *The Banker* fell by some 20% between November 1998 and November 2001, the number of people they employed rose by some 25%.
- The UK has attracted more foreign direct investment in financial services than any other European country. The stock of foreign direct investment in UK financial services amounted to £69 billion at the end of 2001, compared with £61 billion at the end of 2000 and £45 billion at the end of 1998. Of the total, £15 billion originated in the rest of the EU at the end of 2000, compared with £8 billion at the end of 1998 (Chart 10).

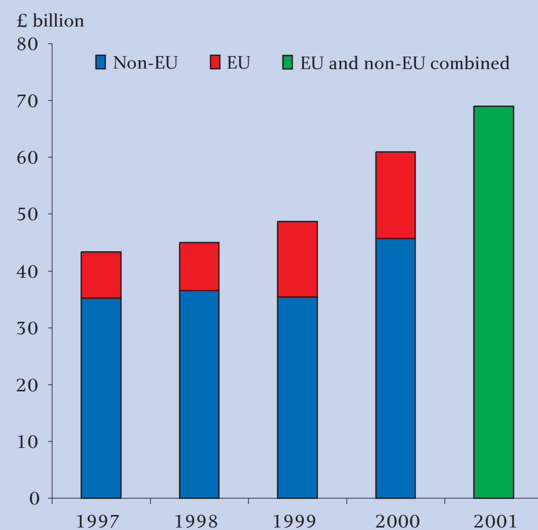
CHART 9: NUMBER OF FOREIGN BANK BRANCHES AND SUBSIDIARIES



Note: London and Paris, September 2002; and Frankfurt, March 2002

Source: NCBs and supervisory bodies

CHART 10: FOREIGN DIRECT INVESTMENT IN UK FINANCIAL SERVICES



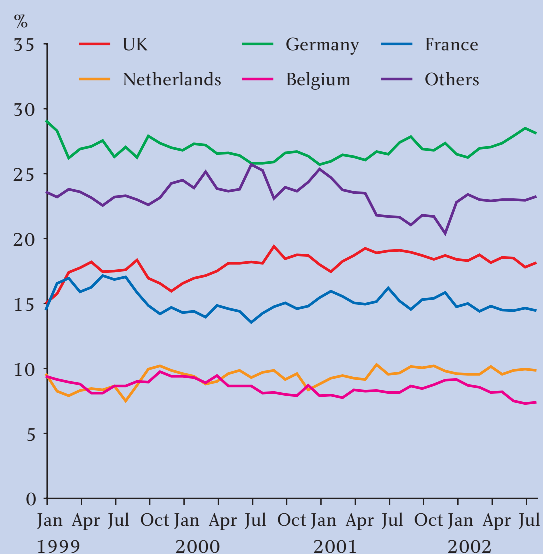
Note: end-year; for end-2001, EU/non-EU breakdown not available until early 2003

Source: ONS

Payments

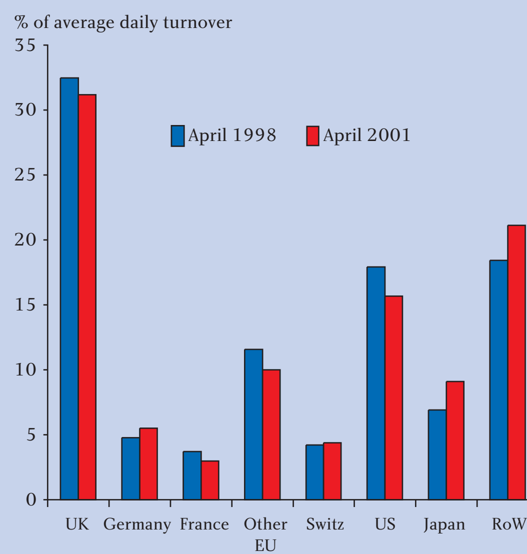
- More cross-border euro payments are sent through TARGET from CHAPS Euro in London than from any other European centre, apart from the RTGS^{plus} system in Germany.
- CHAPS Euro accounts for 18% by value and 18% by volume of all cross-border payments sent through TARGET, compared with 15% by value and 10% by volume in January 1999 (Chart 11). The value of cross-border euro payments handled by CHAPS Euro increased to a daily average of €86 billion in the first eight months of 2002, and domestic euro payments to €26 billion per day, compared with €59 billion and €18 billion per day respectively in 1999.

CHART 11: CROSS-BORDER EURO RTGS PAYMENT VALUES



Source: ECB

CHART 12: GLOBAL FOREIGN EXCHANGE TURNOVER: MARKET SHARES



Source: BIS Triennial Survey

Foreign exchange

- Shares of global foreign exchange turnover changed very little between the BIS Triennial Surveys in April 1998 and April 2001. The UK share declined from 32.5% to 31.1%, while the share for Germany increased from 4.8% to 5.4% and for France declined from 3.7% to 3.0% (Chart 12).
- Between April 1998 and April 2001, UK foreign exchange turnover fell by 21% from a daily average of $637 billion to $504 billion, owing to the substitution of the euro for legacy currencies, consolidation in the banking industry, and the growing use of efficient electronic trading systems.
- More foreign exchange trading in euro takes place in the UK ($207 billion per day in April 2001) than within the euro area (where, for example, $56 billion per day was traded in Germany and $35 billion per day in France).
- The global market share of large firms, most of which are based in London, has increased at the expense of smaller firms.

Money market

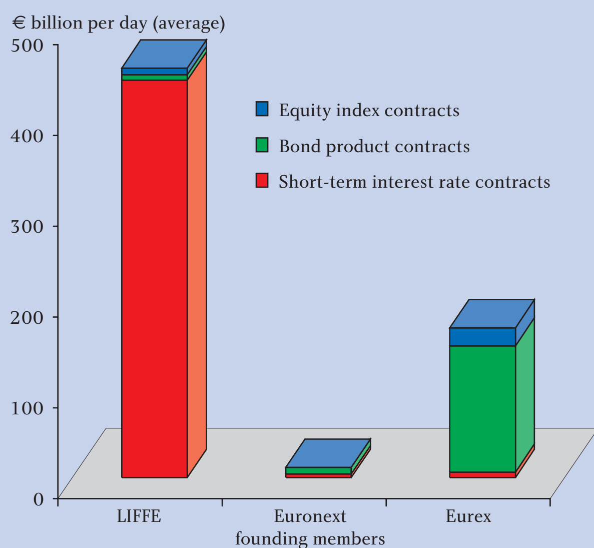
- The WMBA estimates that the value of unsecured overnight loans in euro broked in London in September 2002 was nearly three times as high as at the beginning of 1999.
- ISMA's latest survey (published in September 2002) of the European repo markets indicates that around one half of cross-border repo was with counterparties outside the euro area. These counterparties are thought mainly to be market firms in London.

Derivatives

- *Exchange-traded derivatives* Taking euro STIR, bond and other contracts together, LIFFE is the largest derivatives exchange in Europe by notional value of contracts traded (Chart 13), though Eurex has been the largest derivatives exchange in Europe by volume of contracts traded since 1998. Since March 2001, over 99.5% of euro STIR contracts on the three major European derivatives exchanges (London, Frankfurt and Paris) have

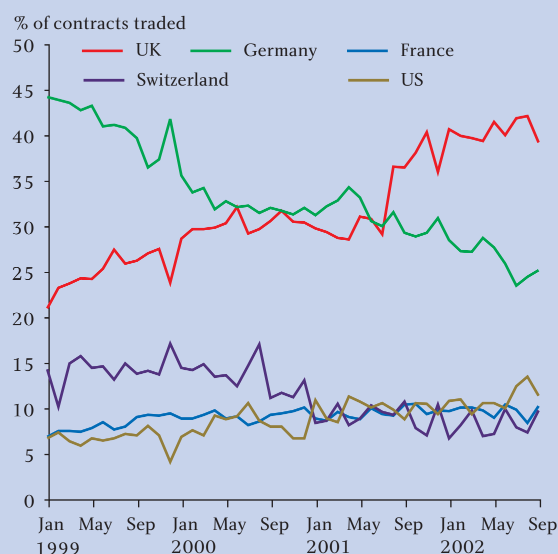
been traded on LIFFE. Nearly all Bund futures are traded on Eurex. However, Bund futures on Eurex are extensively traded remotely from London. Between January and September 2002, UK-based traders were responsible for 40% of all trading on Eurex by volume, compared with 25% in 1999 and 7% in 1997. By contrast, 26% of trading on Eurex was originated in Germany, compared with 41% in 1999 and 81% in 1997 (Chart 14).

CHART 13: EXCHANGE-TRADED DERIVATIVES BY VALUE



Note: January 1999 – August 2002 inclusive
Source: Bank of England

CHART 14: TRADING ON EUREX BY COUNTRY OF PARTICIPANT



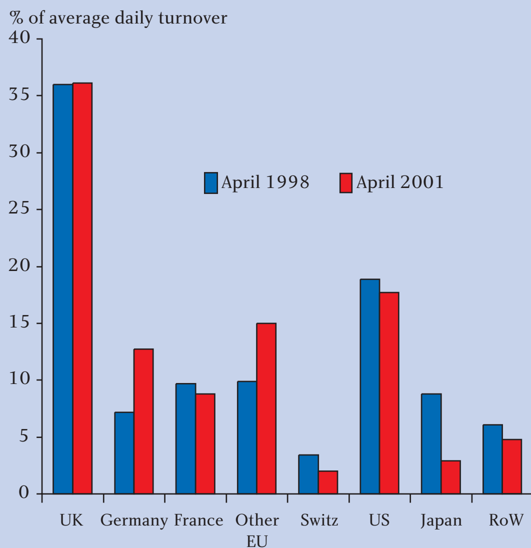
Source: Eurex

- *Over-the-counter derivatives* The BIS Triennial Survey shows that the UK's market share of global OTC derivatives trading in April 2001 was 36.1% (or $275 billion per day). Its market share was unchanged from April 1998 ($171 billion per day). Over the same period, Germany's share increased to 12.7% from 7.2%, and France's share declined to 8.8% from 9.7% (Chart 15). Global OTC interest rate derivatives turnover rose by 85% between the surveys in April 1998 and 2001, while turnover in the OTC currency derivatives market fell by 31%.
- *Credit derivatives* A BBA survey in July 2002 estimates that London's share of the global credit derivatives market at the end of 2001 was 49%. ISDA estimates the notional value of global credit derivatives outstanding in mid-2002 at around $1.6 trillion.

Banking

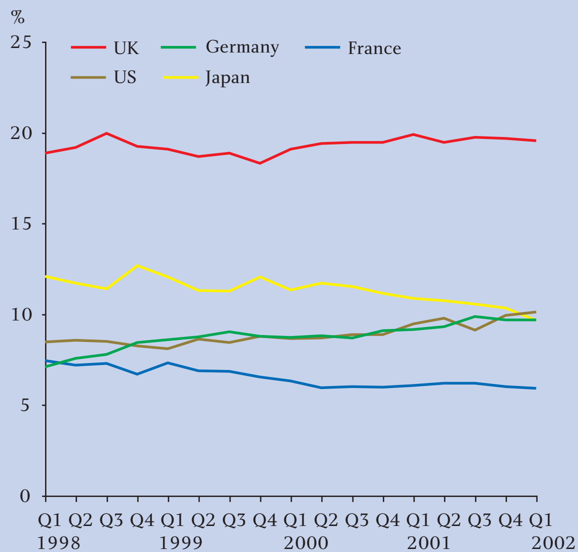
- The BIS estimates that the UK originated 19.5% of global cross-border bank lending outstanding at the end of March 2002, compared with 19.2% at the end of December 1998. France's share fell to 5.9% from 6.7%, and Germany's share increased to 9.7% from 8.4% (Chart 16).

CHART 15: OTC DERIVATIVES TURNOVER: MARKET SHARES



Source: BIS Triennial Survey

CHART 16: CROSS-BORDER BANK LENDING: MARKET SHARES

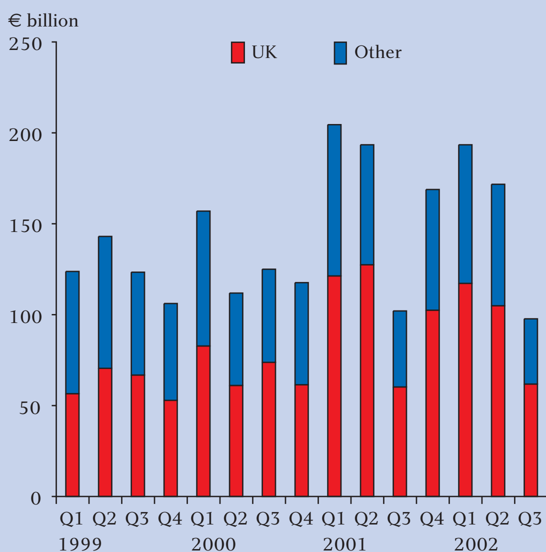


Source: BIS Quarterly Review

Bonds

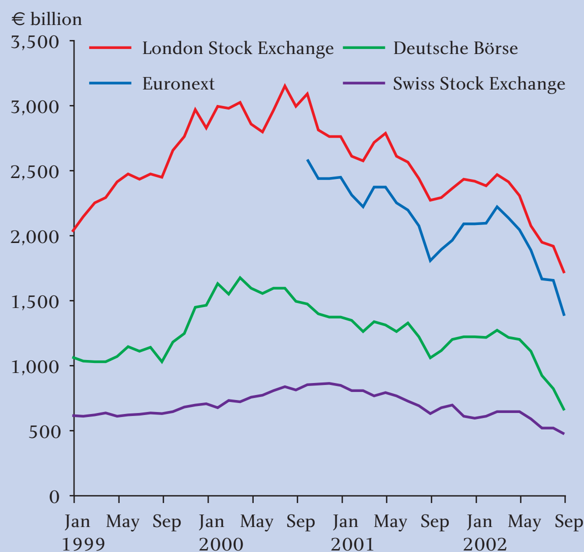
- London's market share of the issuance of euro-denominated Eurobonds over the 12 month period to the end of September 2002 was just over 60%, compared with 50% in 1999 (Chart 17). These figures use the location of the bookrunners as a proxy for the centre from which bonds are issued.
- International Financial Services, London (IFSL) estimates that London has a global market share of secondary trading in Eurobonds of around 70%, and that this has not changed significantly since 1998.

CHART 17: EURO-DENOMINATED EUROBOND ISSUANCE



Source: Dealogic

CHART 18: MARKET CAPITALISATION ON EUROPEAN EXCHANGES



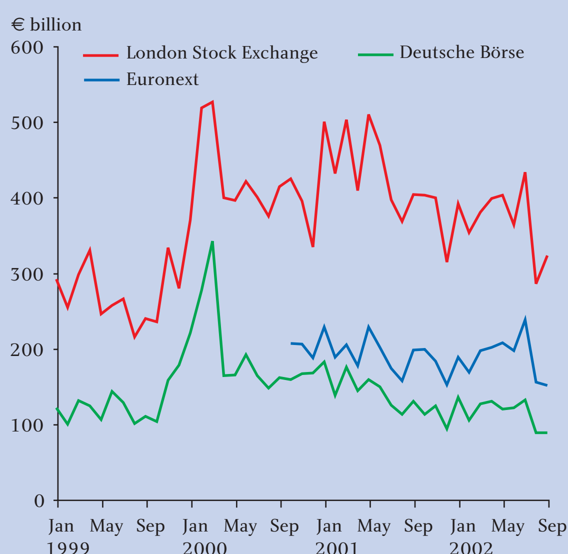
Note: Swiss figures include Swiss securities on virt-x

Source: FESE

Equities

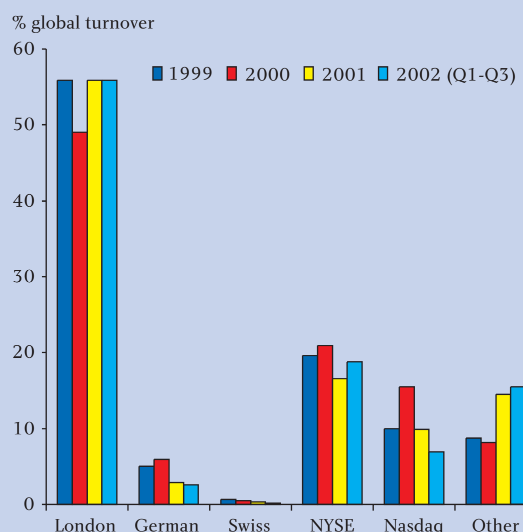
- The market capitalisation of companies traded on the London Stock Exchange rose from the equivalent of €2.0 trillion at the beginning of 1999 to a peak of €3.1 trillion in August 2000, before falling back to €1.7 trillion at the end of September 2002, in line with the decline in equity market prices. Following a similar pattern, the market capitalisation of companies traded on Deutsche Börse amounted to €0.6 trillion at the end of September 2002. The market capitalisation of companies traded on the merged exchanges on Euronext amounted to €1.4 trillion at the end of September 2002, of which Euronext Paris accounted for €0.9 trillion (Chart 18).
- The Federation of European Stock Exchanges (FESE) estimates that London Stock Exchange turnover has been consistently higher than Deutsche Börse since the beginning of 1999, and than Euronext since its formation (Chart 19).
- The World Federation of Exchanges (WFE) estimates that London's market share of global foreign equity turnover remained unchanged at 56% between 1999 and the first three quarters of 2002. The share of German exchanges fell from 5% in 1999 to 2.7% in the first three quarters of 2002 (Chart 20).

CHART 19: MONTHLY VALUE OF EQUITY TURNOVER ON EUROPEAN EXCHANGES



Source: FESE

CHART 20: FOREIGN EQUITY TURNOVER ON GLOBAL EXCHANGES



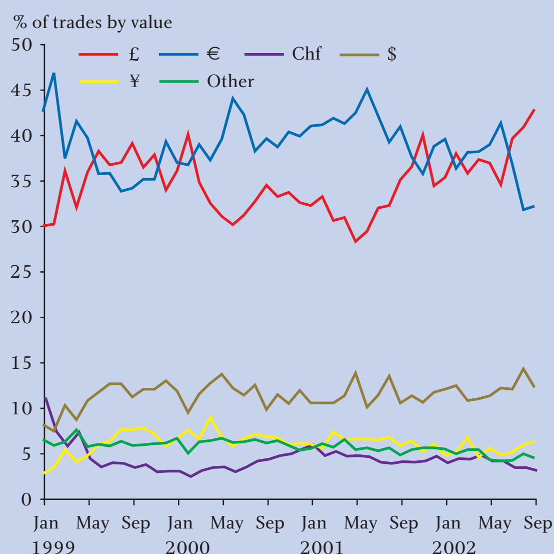
Note: Swiss figures exclude Swiss securities on virt-x

Source: WFE

- The proportion of equity turnover in euro reported to the London Stock Exchange by member firms is around 32% – a lower proportion than at the beginning of 1999 (Chart 21).
- The number of foreign companies admitted to trading on the London Stock Exchange fell to 425 in September 2002 from 521 at the end of 1998. Over the same period, the number of foreign listings on Deutsche Börse rose to 229 from 210.
- The number of companies admitted to trading on the Alternative Investment Market (AIM), the London Stock Exchange's market for smaller growing companies, increased from 312 at the end of 1998 to 347 at the end of 1999 and to 686 at the end of September 2002. Over the same period, the number of listings on the Nouveau Marché,

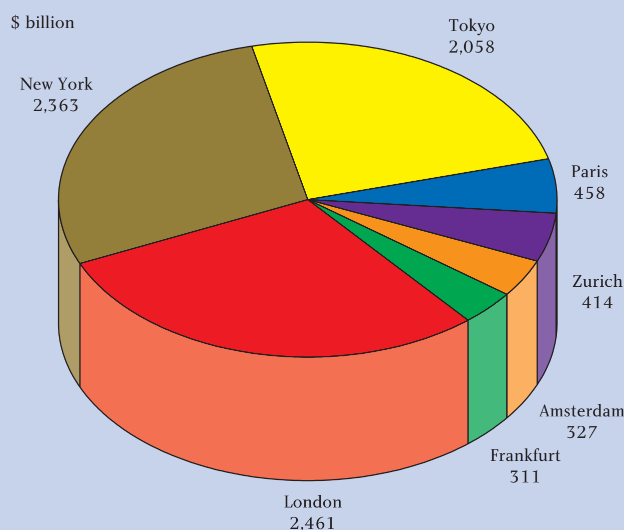
the market in Paris for growing companies, increased from 81 at the end of 1998 to 111 at the end of 1999 to 154 at the end of September 2002. On the Neuer Markt, Deutsche Börse's exchange for high-growth and technology companies, the number of listings increased from 62 at the end of 1998 to 201 at the end of 1999 and to a peak of 345 in July 2001, before falling to 264 at the end of September 2002. The Deutsche Börse has recently announced a decision to close the Neuer Markt.

CHART 21: TRADES BY CURRENCY ON THE LONDON STOCK EXCHANGE



Source: London Stock Exchange

CHART 22: HOLDINGS OF INSTITUTIONAL EQUITIES IN LEADING FINANCIAL CENTRES



Note: end-1999

Source: Thomson Financial (2000)

Fund management

- At the end of 1999, London was the leading global centre for the fund management of institutional equities, with $2,461 billion under management – more than the next four largest European centres (Paris, Zurich, Amsterdam and Frankfurt) combined (Chart 22). Edinburgh and Glasgow combined ranked as the sixth largest European centre for institutional equity management.
- Reflecting the fall in equity markets since the end of 1999, there will have been a substantial fall in the value of institutional equities under management in London and other fund management centres, but this does not necessarily imply any change in London's market share.
- A survey by the European Private Equity and Venture Capital Association estimates that the UK accounted for 29% of total private equity investment in Europe in 2001, compared with 18% for Germany and 14% for France.

Insurance

- The UK insurance market is the largest in Europe, and the third largest in the world. London is the world's leading market for internationally traded insurance and reinsurance. The UK is the global leader in aviation and marine insurance, with a combined market share of 23% in 1999.

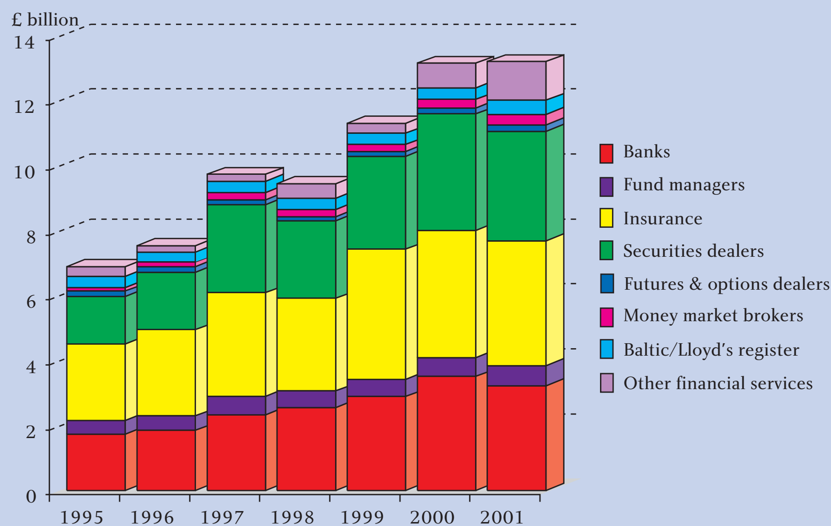
Professional services

- London and New York are the two leading centres for international legal services. The 'big four' accounting firms, which operate world-wide, have very substantial operations in London. London is also a leading centre for management consulting services.

Overseas earnings

- Overall, IFSL estimates that the UK's net exports of financial services were over £13 billion in 2001 (Chart 23).

CHART 23: UK FINANCIAL SECTOR NET EXPORTS



Source: IFSL

D THE LOCATION OF MARKET FIRMS

27 As the euro markets become more integrated, the location of wholesale market activity is increasingly hard to pin down. A transaction can be carried out between counterparties in two different locations on behalf of clients in a third and fourth, and settled in a fifth. For example, the steps in a foreign exchange transaction – customer contact, trade execution, booking, risk management and settlement – may all take place in different locations. For most international market firms, what is important is where their key staff are located, because that is where most value is added. Where have large international market firms based their activities in Europe since the launch of the euro?

Treasury and risk management

28 In many cases, international market firms appear to have consolidated their European treasury and risk management, as risk is easier to control if it is managed in one centre: treasury operations can be an important source of risk; and equally, they can be an important means of managing or reducing risk. Many firms have chosen London, because of its market liquidity and their commitment to international activities in general, and not just in euro. Some international market firms in London consider that being able to make payments where the ECB is located (ie 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 have chosen to base their cross-border euro payment operations in London, making use of CHAPS Euro to access TARGET, and of the EBA's EURO1 system.

Trading

29 The location of international markets firms' euro trading activities tends to be the same as their risk management activities, as the same factors apply: ie the need for liquidity to assist risk management and the ability to exercise control over the risks of the business. This is clearly the case with foreign exchange trading, where the euro 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 the French OAT†), trading can take place over-the-counter in London and by access to infrastructure located both in London and abroad. More derivatives contracts by volume are now traded on Eurex from the UK than in Germany. And business in EURIBOR-based short-term interest rate contacts is overwhelmingly concentrated on LIFFE, even though EURIBOR is a price source for the euro area.

Capital markets

30 The euro capital market activities of most international market firms are based in London, where expertise in credit and equity products is concentrated, while their sales and marketing teams need to be near the client base, as long-term client relationships are very important in winning new issue mandates. 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. However, many of the underlying sector skills (ie industry coverage) and product coverage

(eg investment grade corporates, high-yield securities, asset-backed securities, syndicated loans) have been centralised in London.

M&A

31 The largest US-owned investment banks have so far had leading positions in the European M&A market, because of their track record. A number of European-owned market firms have been challenging them by 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. Many market firms have core M&A staff both in London and across the euro area. Some have had to review their strategies following the recent market downturn.

Fund management

32 The main expertise in international fund management in Europe is based in the UK, mainly in London, though fund management activity in Edinburgh and Glasgow has been growing rapidly. 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 sales of mutual funds), among investors seeking to diversify from a national to a pan-European basis. While the most important influence on fund management operations recently has been the impact of the sharp downturn in global equity markets, UK-based fund managers are well placed to compete for any new business, given their track record in managing international portfolios. However, they face competition, not only from other established European centres (such as Paris, Zurich, Amsterdam, Frankfurt and Munich), but also from newer centres (such as Dublin), while some fund managers have moved away from financial centres altogether.

Research

33 The main expertise in financial market research in Europe is based in London, both in analysing credit risk in the euro bond market, and in analysing international stock sectors (eg telecoms and consumer goods) and individual stock-picking in the equity market. Clearly, an issue that some integrated firms have had to face is how to maintain the confidence of institutional investors that their research analysts are independent, if they are also involved in transactions for corporate clients. But this does not appear to have affected where analysts are located.

Settlement processing

34 Complex settlement processing is generally handled by international market firms in close physical proximity to the trading desk, as this makes it easier to control. However, 'core' (straightforward) processing need not be in the same location. Staff and office costs are a key consideration in deciding whether core processing should be kept in-house or contracted out, and where it should be. In many cases, core processing is located out of London (eg elsewhere in the south of England), and in some cases outside the UK (eg in Dublin).

E INFLUENCES ON CHOICE OF LOCATION

35 This final section considers the main influences to date on international market firms' choice of location, based on comments made by market firms themselves.

Global influences on competition

36 The UK's performance in financial services has not just been a function of the City's activities in the euro markets, or competition between London and other financial centres in Europe. It has also been a function of London's global competitiveness (eg vis-à-vis New York), and of the impact of technology on financial centres in general.

37 Given the extent of global competition, it is all the more important that the EU remains globally competitive. The City has contributed to the EU's international competitiveness by providing efficient wholesale financial services across Europe. In doing so, it may also have helped to stimulate financial activity in Frankfurt and Paris, rather than the reverse.

38 Technological change is having a marked impact on the financial services sector. Most market firms expect that their complex product-based activities, where most value is added, will remain in established financial centres, like London, though technological change may lead to the dispersion of some other activities.

Critical mass of expertise

39 One of the main reasons why many international market firms have based their euro market activities in London is because of the critical mass of skills in financial services and legal, accounting and other professional advice already located there. Critical mass is important for international market firms: key staff add more value if they are concentrated in one location where they are in face-to-face contact with colleagues, clients and competitors in other market firms, and where the depth and quality of support services is greater.

40 London has benefited from the large pool of financial talent available. Market firms need access to a large pool of financial talent, both because they are offering such a wide range of sophisticated financial services, and because they must innovate to survive. Salary costs in London are regarded as high in European terms (though not in relation to New York), but are offset by lower indirect costs; personal tax rates are also comparatively low. The main negative factor is that the cost of living – and in particular the cost of housing – in and around London is comparatively high.

41 Flexibility in working practices is another important consideration for market firms in London. As a result, staffing in London is likely to be more affected, proportionately, by a downturn than in continental European financial centres, because laying off staff is less difficult; but staffing is likely to increase by more when activity recovers.

Financial infrastructure

42 So much euro business is undertaken in London that access to an efficient and robust financial infrastructure in euro is essential. The Bank has a critical role in overseeing UK payment systems and those securities settlement systems which contain embedded payment systems (eg CREST).[3] UK exchanges, clearing houses and settlement systems are regulated by the FSA. The Bank also has an interest in the UK financial infrastructure as a whole, because of its responsibilities in relation to financial stability.

- *CHAPS Euro* has settled same-day, high-value euro payments in real time since the launch of the euro. As a result of the NewCHAPS project, the technology for making sterling payments was replaced in August 2001 with the more modern platform already used for CHAPS Euro, allowing enhanced functionality.
- *CLS Bank*, which began operations in September 2002, has introduced payment-versus-payment (PVP†) in real time to address the settlement risks arising from foreign exchange transactions in a number of major currencies, including the euro.
- *The London Stock Exchange and LIFFE* have enhanced their trading systems and adapted their rules to ensure that their markets remain attractive to investors. Under the merger with Euronext, LIFFE is due to become the European hub for Euronext's derivatives business, and the other derivatives exchanges in Euronext have agreed to move onto LIFFE's CONNECT platform, starting in the first quarter of 2003.
- *CREST* Following completion of a project in November 2001 to enhance delivery-versus-payment (DVP†) and eliminate intraday risk, securities are settled in CREST against payment of central bank funds in real time. The merger between CREST and Euroclear should improve efficiency and reduce costs, while enabling users to continue to settle UK securities under UK law.
- *LCH* has been playing a growing role as the central counterparty to global OTC market transactions, as well as exchange-traded government bonds and derivatives. Its cleared markets have now been divided into four main business streams: futures and options; RepoClear; SwapClear; and EquityClear.

43 The UK has a history of openness and of providing a level playing field for foreign firms, regardless of the nationality of their ownership. What market firms require is cheap and unrestricted access to payment, and trading, clearing and settlement systems across the Single Market.

- Both CHAPS Euro, through its link to TARGET, and EURO1, provide cheap and effective routes for wholesale euro payments across borders.
- Remote access to trading platforms in London (eg the London Stock Exchange, LIFFE and virt-x) is unrestricted, as in most other European financial centres.
- Clearing of securities, and of some derivatives products, through a central counterparty is reliant on access to a settlement system. There are still restrictions on cross-border access to some settlement systems in the euro area.

3 The Bank published a paper on *Oversight of Payment Systems* in November 2000.

Regulatory framework

44 The UK regulatory framework is widely regarded as fair, risk-based and quick to adapt to market innovation. At the same time, London has a reputation as a 'clean' market, which has high regulatory standards and appropriate safeguards for investors, without stifling innovation, competition and risk-taking.

45 Apart from international market firms, a wide range of electronic trading systems (including, for example, BrokerTec, EuroMTS, EBS, Instinet and Fxall) are governed by UK regulation, and have the UK as their legal jurisdiction. And exchanges (such as virt-x) and central counterparties (such as EuroCCP) have also chosen to locate in London. However, consolidation of the financial infrastructure across Europe also requires close cooperation between different national regulators. So, for example, the FSA contributes to a college of regulators for the merged Euronext.liffe group.

46 In current market conditions, a stable regulatory framework with high standards of corporate governance and disclosure is of particular importance. The UK provides such a framework for company accounting, auditing and disclosure, as well as for insolvencies.

- UK accounting standards are due to be replaced, for listed companies, by International Accounting Standards from 1 January 2005 under an EU Regulation. The FSA is considering the implications of these accounting changes for regulatory reporting and supervision.
- An HM Treasury and DTI group on accounting and audit issues has recently reported on lessons to be learned in the UK from recent corporate failures, particularly in the US, focusing on the need for: 'substance over form' (eg in the treatment of special purpose vehicles); possible new accounting standards (eg on share-based payments and revenue recognition); existing accounting standards to be more stringently enforced; and a review of regulatory oversight of the accounting profession. The group has also recommended that the role of company audit committees should be strengthened (eg by having primary responsibility to shareholders for recommending the appointment of auditors and for approving the purchase of non-audit services); and proposed that measures to promote the independence of auditors should be considered.
- The UK corporate disclosure regime is set by the UK listing rules, which require publicly traded companies to publish full audited financial statements annually and six-monthly interim statements, with continuous public reporting of significant events. Insurance companies publish prudential returns annually. The FSA is currently consulting the market on updating the UK listing rules, and simplifying them where possible.

47 There is a strong cultural commitment to policy transparency, and a comprehensive legal, institutional and supervisory regime for the prevention of financial crime.

48 But regulation is not only about quality. It is also about cost. The FSA produces an annual comparison of the costs of regulation in different jurisdictions. This shows that its direct costs are internationally competitive, though the overall costs of compliance by market firms are more difficult to estimate.

Taxation

49 The UK has provided a favourable environment for personal and corporate tax. The UK's top rate of personal tax is the lowest of all the major economies in Europe. UK corporation tax, at 30%, is among the lowest in the EU, though not as low as in Ireland. The main concerns among market practitioners have related to recent proposals to allocate capital to foreign bank branches for tax purposes, as happens in many other financial centres, and to review the rules on personal domicile. There are also concerns about the incidence of stamp duty, which may have had a negative impact on the volume of UK share transactions, according to recent research by the Institute for Fiscal Studies. Besides the incidence of tax, a separate consideration which market firms regard as important is to be able to obtain clear and quick responses from the tax authorities to enquiries.

Physical infrastructure

50 In addition to an efficient financial infrastructure, London's physical infrastructure as a financial centre must also meet the needs of market firms and their staff.

- London has always provided sufficient office space in aggregate terms, but international market firms have been looking for sites – and in particular trading floors – on a scale that the Square Mile has found difficult to accommodate. Canary Wharf and other locations elsewhere in London have filled the gap.
- Following the tragic events of 11 September 2001, market firms have given a much higher priority to contingency planning against the risk of large-scale disruption (eg through additional staff training and ensuring that firms have back-up sites in appropriate locations). The FSA has carried out a review and concluded that contingency arrangements are generally in place at major firms, though there is scope for further improvement. The Bank, FSA and HM Treasury have also been carrying out work to ensure adequate arrangements are in place to enable a co-ordinated response if large-scale disruption were to occur.
- The City is also a telecoms centre, connecting markets, market firms and their clients, and the London Internet Exchange (LINX†) in Docklands is the most widely used internet exchange point in Europe.
- The range of international transport links (including from City Airport and via Eurostar) from London has improved, and there are plans to increase airport capacity in the south-east. However, the rail infrastructure, including the underground, and airport and traffic congestion within London, are frequently cited as negative factors.

Language, learning, law and culture

51 The City has advantages which are difficult to quantify, but important to take into account, such as: the use of English as the language of international finance, which benefits all financial centres, but is of particular advantage to London; the City University, the London Business School and the London School of Economics, which have international reputations and close connections with the City; the use of English law for international financial transactions, which is widespread; and a wide range of professional organisations. And London is a cosmopolitan city, with a diversity of cultures.

GLOSSARY

AER Annual Equivalent Rate: an interest rate defined in the Code of Conduct for the Advertising of Interest Bearing Accounts published by the BBA and the Building Societies Association.

APR Annual Percentage Rate: the interest rate which has to be quoted in advertisements and quotations for credit regulated by the Consumer Credit Act 1974.

Bund contract A bond futures contract, based on a notional long-term debt instrument issued by the German Federal Government with a term of $8^1/_2$ to $10^1/_2$ years and an interest rate of 6%.

Central counterparty Sometimes referred to as 'CCP': is legally interposed between buyer and seller in member-executed transactions. Although it is more common for CCPs to accept transactions that take place on exchanges, eg derivatives and equities, they are increasingly willing to accept OTC products, including interbank interest-rate swaps, repos, cash bonds and commodity derivatives.

CMA Cash Memorandum Account: maintained by CREST in the name of a member. The member makes cash postings to the account, which records the cumulative (net) balance, at any time in the course of the settlement day, of payments made and received in the relevant designated currency by that member.

DVP Delivery-Versus-Payment: a mechanism in an exchange-for-value settlement system that ensures that the final transfer of one asset occurs only if the final transfer of another asset occurs simultaneously. Assets may include money, securities or financial instruments.

Enquiry Link The system that allows account holders in the UK RTGS Processor to interrogate balance and other information, and to perform certain other functions; supported by the SWIFTNet Network.

EONIA Euro Overnight Index Average: the weighted average, to two decimal places, of all overnight unsecured lending transactions in the interbank market, initiated by the EURIBOR contributing panel banks; calculated by the ECB.

EURIBOR Euro Interbank Offered Rate: the average rate at which euro interbank unsecured term deposits are offered by one (EURIBOR panel) prime bank to another prime bank; displayed to three decimal places and published at 11:00 central European time (CET); sponsored by the EBF and the ACI.

Euro LIBOR Euro London Interbank Offered Rate: the average rate at which the 16 UK-based contributor banks can borrow unsecured funds in euro, displayed to five decimal places and published at 11:00 London time; fixed by the BBA.

EURONIA Euro Overnight Index Average: the weighted average rate, to four decimal places, of all unsecured euro overnight cash transactions brokered in London; calculated by the WMBA.

FSMA Financial Services and Markets Act (2000): provides a single legal framework for the FSA, and sets the statutory objectives, and principles of good regulation, for its operations.

GAAP Generally Accepted Accounting Principles.

ISIN	International Securities Identification Number: a standardised identification (eg GB0031790826) of securities and other financial instruments within a uniform system.
Legacy currencies	The former national currencies of the countries participating in EMU.
LINX	London Internet Exchange: a not-for-profit partnership of Internet Service Providers, providing a physical interconnection for the exchange of internet traffic.
Monetary and financial institutions	In a UK context, monetary and financial institutions are broadly equivalent to banks and building societies.
MRO	Main Refinancing Operation: regular OMO used by the ECB to provide 14-day funds to the banking system.
OATs	Obligations Assimilables du Trésor: French Government securities issued with maturities of 7 to 30 years.
OMO	Open Market Operation: transaction undertaken between a central bank and its money market counterparties, at the initiative of the central bank.
PIBOR	Paris InterBank Offered Rate: no longer quoted.
PVP	Payment-Versus-Payment: a mechanism ensuring that final payment of one sum takes place only if the final transfer of the other sum occurs simultaneously.
RTGS	Real-Time Gross Settlement: the gross settlement in real time of payments across settlement accounts maintained at the central bank.
SONIA	Sterling OverNight Index Average: the weighted average rate to four decimal places of all unsecured sterling overnight cash transactions brokered in London; calculated and published by the WMBA.
SSIs	Standard Settlement Instructions: used by firms in the wholesale market to facilitate the payment and settlement process, by making available to counterparties standardised instructions regarding relevant bank or settlement account details.
STIR	Short-Term Interest Rate: normally used in the context of a three-month interest rate futures contract.
TARGET	Trans-European Automated Real-Time Gross Settlement Express Transfer system: links the 15 euro-denominated RTGS systems in the EU and the ECB payment mechanism, to provide an EU-wide RTGS system.

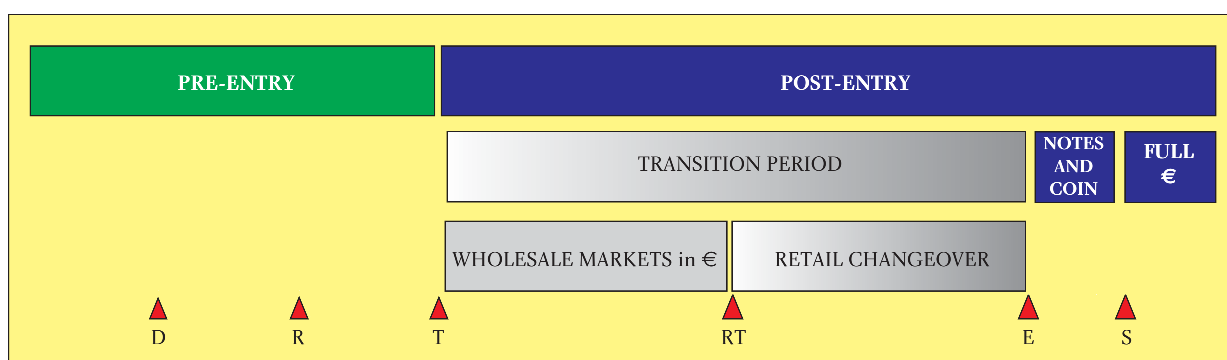
PART II: CITY GUIDE TO A UK EURO CHANGEOVER

1 This guide is intended for use by market practitioners in their preparations for possible UK entry to EMU. It is based on guidance given in previous *Practical Issues*, but this has been revised and updated, and updating will continue as more information becomes available. The guide is in two sections.

- Section A focuses on the changeover in sterling wholesale financial markets, if the UK joins EMU.
- Section B considers the interdependencies between wholesale and retail markets during the transition period after UK entry.

2 The assumptions about a UK euro changeover on which the guide is based are set out in Chart 1. HM Treasury's *Sixth Report on Euro Preparations*, published in July 2002, gives an illustrative timetable for a UK euro changover, in which: the period from a Government decision to join (D) to a Referendum (R) is assumed to be 4 months; if there is a positive vote in a Referendum, the period between R and the introduction of euro cash (E) is assumed to be between 24 and 30 months; and the dual circulation period between E and S is assumed to be 2 months or less.

CHART 1: A UK EURO CHANGEOVER



Notes: D = Government decision to join; R = Referendum; T = UK entry: fixed conversion rate; sterling wholesale financial markets in euro; RT = full-scale retail payment and transaction processing infrastructure and services available; E = end of transition period; euro notes and coin introduced as legal tender in the UK; S = end of legal tender for sterling notes and coin

A STERLING FINANCIAL MARKETS

3 For each of the various sterling *wholesale* financial markets, this section of the guide distinguishes between:

- financial *instruments* issued before, and outstanding at, entry;
- new financial *instruments* issued after entry;
- financial *transactions* undertaken before entry but settled afterwards; and
- financial *transactions* undertaken after entry.

The Bank of England's own preparations for possible UK entry are summarised in a box at the end of Section A.

4 The guide sets out how the changeover would be expected to be handled, in the event of UK entry. Many decisions on the changeover in sterling financial markets have not yet been taken. Responsibilities for taking these decisions are summarised in a box at the end of the guide. Some decisions would be subject to legislation which, though not yet drafted, would be expected to be broadly similar in nature for the UK as for the first wave. The focus here is on sterling financial instruments and transactions, governed by English law and jurisdiction.

- In the case of financial instruments, the changeover would depend on decisions by Government (eg on the method of redenominating gilts), and by other issuers, which would in turn be subject to any legislation introduced to facilitate the redenomination of bonds and company share capital. The denomination of cash-flow payments and common market conventions (eg day counts and payments) would be determined by market practice, subject to the terms of existing contracts.
- In the case of financial transactions on exchanges, the changeover would depend on decisions by the relevant exchanges (including the London Stock Exchange and LIFFE) and settlement systems (including CREST). They would in turn be influenced by the views of market practitioners. In the case of over-the-counter financial transactions, common conventions for the changeover would depend directly on market practice.

5 In addition, it would be important to take account of any changes in sterling market practice before possible UK entry: for example, any further changes in market conventions; any future revisions to Bank and BBA guidelines for CDs and commercial paper; and progress in dematerialising bearer money market instruments.

Financial instruments issued before, and outstanding at, entry

(i) Nominal values

6 The nominal values of financial instruments issued before, and outstanding at, UK entry would remain denominated in sterling during the transition period after entry, unless their nominal values were redenominated from sterling to euro.

7 *Treasury bills*, as bearer instruments with a maturity under six months, would be expected to run off in sterling and be replaced by new issues in euro. However, dematerialisation of Treasury bills (and other money market instruments) is planned for the second half of 2003. If the UK joined EMU after dematerialisation, there is a presumption that Treasury bills would be redenominated on entry, using the same method as for gilts. The market would be consulted before a decision was taken.

8 *Other money market securities* with a maturity of less than one year include bank bills, some CDs, trade bills and commercial paper. After UK entry, outstanding money market securities would quickly run off and be replaced by new issues denominated in euro. It is not expected that they would be redenominated while they were paper instruments. As with Treasury bills, dematerialisation is planned for the second half of 2003, though issuers would be able to keep securities in paper form, if they preferred. If the UK joined EMU after dematerialisation had taken place, there would be three main options:

- they could be left to run off in sterling;
- they could be redenominated on entry; or
- those that remained outstanding on a particular date (say three months) after entry could be redenominated at that point.

The choice between these options would be for the market. The outcome might be influenced by the extent to which sterling business was replaced by euro business before entry.

9 *Other bank instruments* include the following:

- *bank deposits*, which are generally short term and not traded: it is not expected that the principal amounts outstanding on entry would be converted;
- *CDs*, which are traded and have a maturity of up to five years: CDs issued in sterling before entry would not be expected to be redenominated, where they took the form of bearer instruments; but if and when dematerialised, the same considerations would be expected to apply as for other money market securities;
- *syndicated bank loans*, which have a wide range of maturities: except where the loan documentation makes specific provision for UK entry, it is not expected that the principal amount outstanding nor the total commitment would be converted until the end of the transition period.

10 *Gilts in registered form* would be expected to be redenominated on entry. Under UK legislation, they would be expected to be redenominated by individual holding (by each stock account), and rounded to the nearest euro cent. Index-linked gilts would continue to be linked to the UK retail price index.

11 *Gilts in bearer form*, of which there are 13 issues, would be deemed to be redenominated on entry, but without requiring an actual exchange of paper instruments or physical 'stamping over'. The UK legislation covering the redenomination of gilts might need specifically to provide for this.

12 *Minimum denominations*

- All gilts and many other sterling debt securities are transferable in minimum multiples of one penny. On redenomination, the minimum transferable multiple would be one cent.
- Requests to strip or to reconstitute gilts must be in minimum amounts of £10,000. In the event of UK entry, the euro threshold would be expected to be €10,000.
- Under the FSMA†, which came into force at the end of November 2001, there is no longer any statutory minimum denomination for debt securities, except that, under the FSMA Regulated Activities Order, the proceeds of any issue of debt securities with an original maturity of less than one year with a minimum redemption value for each security of under £100,000 would count as a deposit, and the issuer could require authorisation. In the event of UK entry, a convenient round euro threshold would be needed for this amount.

- Where debt securities are managed by registrars and transferable in minimum multiples other than one penny (eg £1), registrars would need to agree with issuers new transferable multiples in euro for redenominated securities. If the euro-sterling conversion rate did not provide an exact conversion from old sterling multiples to the new euro multiples, issuers would need to instruct registrars about the rounding policy to be adopted in drawing up the register. The market might need to provide, for a limited period, a sale or repurchase facility to allow redenominated securities to be held in amounts easily divisible by the new euro multiple.

13 *ISINs* To date there has been a presumption that ISINs† on gilts and other sterling debt instruments should not change on redenomination, as in those first-wave countries which redenominated to the nearest euro cent, on the grounds that this would create fewer difficulties for the market as a whole than changing them. It would be for market firms to consider this approach, taking the interests of their front and back offices together. The DMO and CREST will consult the market. The decision about gilts will ultimately rest with the issuer.

14 *Bonds by other issuers* The legislation providing for gilt redenomination on UK entry could also allow redenomination on or after entry of sterling bonds issued by other sovereign and supranational issuers and by corporate issuers under English law, using the same method as for gilts. If corporate and other issuers wished to redenominate their sterling bonds, it is expected that they would be encouraged to do so at an interval after entry, to minimise the market's workload at entry. Issuers would need to weigh any benefits from redenomination against the costs. They would not be compelled to redenominate and, based on experience of the first wave, many issuers would not do so. In particular, it seems unlikely that bearer bonds (eg sterling Eurobonds) would be redenominated. It is not yet clear whether special arrangements would be needed to facilitate redenomination after entry of bonds held in dematerialised form. If issuers did redenominate, the IPAA would prefer them to do so on a coupon date.

15 *Equities* In the event of UK entry, and subject to any legislation, it would be up to companies whether, and if so when, to redenominate their sterling share capital into euro during the transition period (see Section B).

16 *Over-the-counter derivatives* contracts outstanding in sterling at UK entry would be expected to continue in sterling rather than be converted into euro. Contracts with expiry dates after the end of the transition period would thereafter be 'read as euro' at the conversion rate. There may be market demand for an ISDA Protocol, in the event of UK entry, covering similar ground to its EMU Protocol for the first wave (eg continuity of contracts, business day conventions, price sources and payment netting).

17 *Exchange-traded derivatives* No decisions have yet been taken, but LIFFE expects that the conversion from sterling to euro would be handled as follows.

- *Short Sterling contracts* Open positions in Short Sterling contracts expiring after the date of UK entry would be converted on a mandatory basis using a ratio set by the Board of LIFFE. The ratio would be based on the conversion rate. The timing of

the conversion, and the reference rate against which settlement would be made, would be notified, following market consultations, after a Government decision to recommend entry.

- *Gilt contracts* All delivery months listed after a decision on UK entry would have a notional value denominated in euro. The contract size would be determined after market consultation. Appropriate functionality would be made available to facilitate the rolling of positions from sterling to euro-denominated contracts.
- *Equity index contracts*
  - *(i)* The denomination of individual equity options would reflect the denomination in which the underlying share was quoted. If the trading of any shares changed from sterling to euro before UK entry, the option exercise prices and premiums would be converted into euro at the forward euro/sterling exchange rate for the appropriate expiry date. If conversion occurred on UK entry, the conversion rate would be used. Following conversion, the option premium would be quoted in cents per share.
  - *(ii)* Assuming that the FTSE 100 and FTSE 250 indices continued to be calculated in sterling until UK entry, futures and options on these indices would retain their sterling multiplier until then. Following UK entry, a standard euro-denominated multiplier would be used for all newly introduced contract months.
- *Commodity contracts* The value of open positions in soft commodity contracts (ie cocoa and wheat) expiring after UK entry would be converted on a mandatory basis using a ratio set by the Board of LIFFE, determined by the conversion rate.

18 *End of the transition period* In the case of any sterling financial instruments not redenominated by the end of the transition period, the sterling nominal values would be 'read as euro' at the conversion rate.

(ii) Cash-flow payments

19 During the transition period after UK entry, cash-flow payments (ie interest payments and repayments of principal) on *debt* instruments *redenominated* from sterling to euro would thereafter be expected to be made in euro. (Retail investors would rely on their banks to convert the payments and credit their accounts in sterling.) In the case of cash-flow payments on *debt* instruments which were *not* redenominated, the market's preference would be for issuers to make all cash-flow payments in euro. The only exceptions would be cash-flow payments on non-gilt securities managed by the Bank of England Registrar's Department and unquoted loan stocks, which would continue to be made in sterling until the end of the transition period, unless the issuer chose to redenominate earlier.

20 *Euro/sterling swaps* A special situation would arise in the case of cash-flow payments on euro/sterling swaps. During the transition period after UK entry, these swaps would be in different denominations of the same currency. However, they would still give rise to cash flows in both directions. If there were market demand for a multilateral protocol along the lines of ISDA's 1998 EMU Protocol, parties could determine whether payments between them should be made gross or net by adhering to the Protocol. Market participants that

did not do so would be expected to be able to cope with netting payments on the basis of bilateral agreements.

21 In the case of *equities*, it is assumed that, from UK entry, institutional investors would generally want payment from company registrars in euro, but retail investors would want payment in sterling. Any dividends paid through CREST would only be settled in euro after entry (this would mean that the receiving banks would have to convert into sterling any such payments for clients with sterling accounts). For all dividends paid via BACS or by cheque, guidance is given in Section B.

22 *End of the transition period* In the case of any sterling financial instruments still outstanding at the end of the transition period, all cash-flow payments thereafter would be made in euro at the conversion rate.

(iii) Market conventions

23 Market conventions on sterling financial instruments issued before and outstanding at entry would in general remain unchanged, whether they were redenominated or not, unless there were contractual provisions to change conventions.

- Short-term sterling-denominated *money market* instruments and interbank deposits would be expected to keep existing conventions, except in the case of LIFFE's Short Sterling contract, which already allows for the possible adoption of euro market conventions, in the event of UK entry. Keeping existing conventions would mean, for example, that interest on bank deposits outstanding in sterling on entry would continue to be calculated until maturity on an actual/365 basis, rather than actual/360. In the case of syndicated bank loans, contracts written before entry in sterling on the basis of an actual/365 day count would not change until maturity, even though they would be likely to be funded from entry in euro on the basis of actual/360. Interest rates could be recalculated from one basis to the other, if required. Keeping existing conventions would also mean that payments of interest and repayments of principal for short-term money market instruments and interbank deposits would continue to be made on London business days only. Although it would be open to the market to decide that the TARGET† holiday on 1 May should not be treated as a London business day for market transactions like short-term money market instruments and interbank deposits, such a decision would not necessarily affect other contracts, such as syndicated bank loans, where the specific terms of the contract would continue to apply.
- *Gilts*, which would be redenominated on entry, already use the same market day-count conventions as the euro area (ie actual/actual). However, the definition of business days for payment dates on gilts would probably change to TARGET business days, when gilts were redenominated. (No existing scheduled gilt payments would be postponed by such a change.) Although the actual settlement of payments of interest and repayments of principal would not take place on UK Bank Holidays if BACS and the Cheque and Credit Clearing remained closed on those days, individual banks would be free to choose whether or not to give value to customers on the actual day. It is expected that gilts would continue for the foreseeable future to be issued with semi-annual rather than annual coupons.

For semi-annual coupons, it would be necessary to give at least 7-8 months' notice of the change to TARGET business days, to give time for the necessary systems configuration.

- *Other issuers of sterling bonds* currently use a day count of actual/365 in the case of domestic issues, and 30/360 in the case of international issues. If any of these issuers chose to redenominate their bonds, market participants would prefer market conventions (ie the interest day count and payment dates) on these bonds not to change.

24 Before UK entry, the Government could choose to make separate issues of gilts denominated in sterling and euro with identical coupons and other characteristics, with the intention that these separate issues would be fungible in euro after entry.

New financial instruments issued after entry

(i) Nominal values and cash payments

25 In the wholesale markets, new financial instruments issued during the transition period after UK entry would be expected to be denominated in euro rather than sterling, as would the associated cash-flow payments (ie payments of interest or dividends, and repayments of principal). Possible exceptions might be: new share issues, after entry, on which dividends were still being paid in sterling; new issues within an existing class of share by companies which had not redenominated their share capital from sterling to euro; and corporate bonds which had not been redenominated but were reopened.

(ii) Market conventions

26 New financial instruments issued in euro after UK entry would be expected to use the then prevailing euro market conventions. Sterling market conventions currently differ from euro market conventions in a number of ways.

27 *Day-count conventions* In the euro bond market, interest is already calculated using an actual/actual day-count convention – the same as in the sterling bond market. But in the euro money market, cash flows are discounted, or interest calculated, using a day-count convention of actual/360 rather than the actual/365 convention used in sterling markets. If, before UK entry, the euro money market had not changed to actual/actual, in line with the euro bond market, the day-count convention used for new financial instruments in the euro money market from entry would be actual/360, in line with the euro market convention.

28 *Settlement periods* Assuming that normal settlement periods in the sterling market were to conform to those in the euro market, this would mean changing to longer settlement periods, and increasing settlement risk, in some cases. The sterling money market deals for same-day settlement (ie t+0), whereas the standard settlement convention in the euro money market (other than in e-MID, where settlement is t+0) is t+2, though there is an active overnight funding market (ie t to t+l) and 'tom-next' market (ie t+l to t+2). Gilt settlement would be unchanged, in the event of UK entry (ie t+1), and normal foreign exchange settlement would be 'spot' (ie t+2).

29 *Business days* In the case of new financial instruments issued after UK entry, business days for the payment of interest and dividends, and repayment of principal, would be expected to follow TARGET business days, subject to a number of qualifications. TARGET business days are defined by the ECB. In addition to weekends, TARGET is closed on New Year's Day, Good Friday, Easter Monday, 1 May, Christmas Day and 26 December. Where any one of these days falls on a weekend, there is no additional bank holiday.

30 The main qualifications are the following.

- *CHAPS*, which would settle only in euro from UK entry, would be open on all TARGET business days and closed on TARGET holidays. *CREST* would allow outstanding sterling transactions to settle in sterling for 25 days after UK entry, but otherwise would settle only in euro (rather than sterling) from UK entry. CREST would be closed for euro settlement on TARGET holidays, as now.
- *BACS and the Cheque and Credit Clearing* can settle only on days on which CHAPS is open. In accordance with existing practice, in the event of UK entry BACS and the Cheque and Credit Clearing would remain closed on UK Bank Holidays (ie including one or two Mondays in May, and one in August, that are not TARGET holidays). As 1 May would not be a UK settlement day, but might not be a UK Bank Holiday, the implications for BACS and the Cheque and Credit Clearing are being considered. The first occasion on which this would arise is in 2007.
- *Exchanges*, like the London Stock Exchange and LIFFE, might continue to be closed on UK Bank Holidays, even when these are TARGET business days, as is currently the case with many exchanges in the euro area.

Financial transactions undertaken before entry but settled afterwards

31 *Over-the-counter transactions* potentially affected by the changeover to the euro include interbank deposits, interest rate swaps, forward rate agreements, forward deposits, interest rate options, spot and forward foreign exchange transactions, foreign exchange swaps and options, asset swaps, bond options, equity options and any sterling commodity swaps or options.

32 These transactions could be changed over from sterling to euro in a number of different ways.

- Some sterling money market business might be replaced by euro business in advance of entry, reducing the residual amount of business to be converted on or after entry.
- Outstanding transactions on entry could be allowed to run off in sterling, but with settlement in euro.
- Outstanding transactions could be converted to euro in a 'big bang' on entry, or on a specified date during the transition period after UK entry.
- Conversion could be decided bilaterally by individual institutions with their counterparties.

It is not yet clear which approach market practitioners would prefer in general. But in the specific case of OTC derivatives contracts, it is expected that outstanding contracts would be allowed to expire rather than be converted, though a limited number of market participants might agree to convert them on a bilateral basis. Any contracts outstanding at the end of the transition period would thereafter be 'read as euro' at the conversion rate.

33 *Money market and foreign exchange transactions* entered into in sterling prior to UK entry but settled afterwards would be expected to be settled in euro in accordance with the counterparty's existing standard settlement instructions (SSIs†) for euro payments. Market participants should review their settlement arrangements in good time before entry, and any necessary SSI changes should be provided to counterparties at least six weeks before entry to allow time for processing. Sterling SSIs should not be used for market transactions after entry, but settlement of transactions with customers and non-market participants would be able to continue in sterling after entry until the end of the transition period.

34 In the case of transactions involving *price sources*, sterling price sources would be replaced with euro price sources. The WMBA has already decided that SONIA† would be replaced by EURONIA†. The BBA has not yet decided how it would replace sterling LIBOR and would consult the market before doing so. So it is not yet clear whether contracts outstanding at UK entry involving euro LIBOR would be merged into EURIBOR, or whether euro LIBOR would continue as a separate index. The calculation of EONIA† and EURIBOR† would be likely to change to include more UK banks in the panel, reflecting UK banks' activity, as the UK would be part of the euro area.

35 Euro LIBOR† and EURIBOR are currently published on both an actual/360 and an actual/365 basis, so it would not be necessary to change the day-count convention on existing transactions linked to sterling LIBOR in order to use one of these price sources instead. However, if sterling LIBOR (which is fixed on a t+0 basis) were replaced by euro LIBOR or EURIBOR (which are fixed on a t+2 basis), there would be a mismatch between the value date (to which the rate displayed on a fixing date specified for the transaction relates) and the corresponding period starting date (to which the rate is to be applied). Where this happened in the first wave, it involved a distortion (eg in switching from PIBOR† (t+l) to EURIBOR (t+2)). For sterling syndicated loans, the treatment of fixings would depend on the provisions in the loan documentation. The available choices facing banks and borrowers would be:

- to use the screen rate displayed on the day relating to the appropriate value date (two TARGET days earlier), even if this is not the day specified in the documentation (which will usually be the same day as the value date);
- to use the screen rate displayed on the day specified in the documentation, even though this does not relate to the value date; or
- to seek rates from reference banks for the value date on the date specified in the documentation, on the grounds that the screen rate is not available, even though these are likely to reflect individual banks' book positions rather than market liquidity.

36 In the case of *gilts* and any other debt instruments redenominated on entry, financial transactions undertaken in sterling before entry but settled afterwards would, subject to market consultation, be settled in euro. Market firms would not be expected to reconfirm trades following redenomination, unless bilaterally agreed otherwise.

37 In the case of *repo* transactions, market participants would be encouraged to change over to euro as follows.

- From UK entry, settlement would be expected to be in euro, whether or not bonds had been redenominated, and payment of interest and repayment of principal would be in euro.
- Market participants would be encouraged to keep settlements to a minimum in the two-day period before and after entry.
- Market participants would be encouraged not to reconfirm trades during the conversion process.
- Whatever method market participants used to convert trades, the original trade date should not be changed.
- When a market participant marked a trade to market and made an adjustment to cash or securities after conversion, existing day-count conventions would continue to apply. But when a market participant posted additional cash as collateral, new day-count conventions would apply, as the cash posted would be calculated separately from the principal involved.

38 In the case of *debt* instruments *not* redenominated on entry, and *equities*, CREST has proposed that transactions outstanding at entry should settle in sterling for a period of 25 business days after entry. At the end of 25 days, CREST would either convert all the outstanding transactions into euro consideration or request the market firms concerned to delete and re-input the transactions in euro instead of sterling.

Financial transactions undertaken after entry

39 *Cash and derivatives* transactions undertaken during the transition period after entry would be expected to be settled in euro, unless a market firm agreed with its counterparty or a client agreed with its market firm to settle a transaction in sterling.

40 In the case of *debt* instruments, which are priced in percentage terms, the consideration (including accrued interest) would be expected to be calculated in euro and settled in euro, as in the first wave.

41 In the case of *equities*, the London Stock Exchange has proposed that all shares not already priced in euro rather than sterling before entry would be priced in euro from entry, and all equity transactions after entry should be priced and settled in euro rather than sterling. There would be no change for equities priced in other currencies.

Responsibility for conversion

42 Market firms and their wholesale customers would be expected to have euro bank accounts before UK entry. It is assumed that many retail customers would continue during the transition period to have bank accounts denominated only in sterling. If a euro payment was made to a bank customer with only a sterling account, it would be the responsibility of the receiving bank to credit the euro payment to its customer's account in sterling at the conversion rate. This might be a particular problem with dividend payments of listed companies (see Section B).

43 During the transition period, banks would also be expected to provide information to their customers in both sterling and euro, where appropriate, and market firms would be expected to provide prices for their retail clients in sterling at the conversion rate, when requested to do so.

BANK OF ENGLAND PREPARATIONS: SUMMARY

The Bank of England has been planning for possible UK entry into EMU, under the Government's policy of 'prepare and decide'. If the UK were to join, the Bank would become a full member of the Eurosystem, and a number of issues would need to be addressed in preparing for such a change. As well as amendments to the Bank's finances, balance sheet and Statute, the following changes would be needed.

Monetary policy operations The Bank of England would need to change the way in which it conducted monetary policy operations, in order to participate in the operational framework of the Eurosystem. This would also involve significant changes to the Bank's front, middle and back offices.

- Banks and building societies in the UK (ie some 450 institutions) would be required to hold minimum reserves. The Eurosystem reserve requirement is currently set at 2% of eligible liabilities; the Bank of England would pay interest on these minimum reserves at the ECB MRO† rate. Each bank or building society would need to meet its reserve requirement on average over the monthly maintenance period, and the balance on its reserve account could never become negative. To implement reserve requirements, new Bank systems would be required; and banks and building societies which used their reserves actively, in particular to provide intraday liquidity for payment system purposes, would also need an RTGS† Enquiry Link†, in order to monitor and access their account balances during the day.
- Banks and building societies would be eligible to have access to the Eurosystem marginal lending facility and deposit facility via the Bank of England, at the rates determined by the ECB Governing Council, provided that they fulfilled certain prudential and operational criteria; and, subject to the same criteria, they would also be eligible to apply to the Bank to become counterparties in Eurosystem open market operations (OMOs†). The Bank would receive bids for liquidity at the weekly and monthly ECB tenders, send the results in a timely way to the ECB, and allocate the relevant amounts to the successful counterparties. The ECB's regular operations are for t+1 settlement, whereas the Bank of England's (daily) OMOs are for same-day settlement. Reserve averaging means that the ECB's OMOs do not normally need to have same-day settlement; but ECB fine-tuning operations may have t+0 settlement.
- Assets eligible for use in operations with the Bank of England at present, whether for OMOs, standing facilities or intraday credit, would meet Eurosystem requirements (as set out in the *General Documentation on Eurosystem Monetary Policy Instruments and Procedures*, April 2002); so, in principle, they could continue to be acceptable as collateral in the event of UK entry.
- By set times each day, the Bank of England would provide to the ECB estimates of the Bank's own balance sheet, and a forecast of the liquidity position in the UK money market for the rest of the maintenance period (up to 25 business days ahead).

Payment infrastructure In addition, there would need to be changes in the payment infrastructure.

- *NewCHAPS* A high-volume wholesale real-time domestic system for making euro payments would be needed, if the UK were to join EMU. The NewCHAPS RTGS system, which was completed in August 2001, would provide this. The system was designed to replace outdated technology for making sterling payments with the more modern platform already used now for CHAPS Euro, allowing enhanced functionality. But it also had the incidental benefit of enabling a single high-volume real-time euro payment

system to be readily established if the UK were to join EMU. The migration arrangements to a single system are currently being discussed by the CHAPS Company and its members. The current limits on the Bank of England's ability to provide (collateralised) intraday credit in CHAPS Euro would fall away on entry.

- *Enquiry Link* The upgrading of the Enquiry Link platform for settlement banks was completed in July 2001, removing the capacity constraint on the number of banks that could have access to a real-time enquiry link, if the UK joined EMU.
- *DVP* The project to enhance DVP†, by introducing settlement of securities in CREST against payment of central bank funds in real time, went live at the end of November 2001, and therefore meets the ECB requirement that, by 2002, only systems offering DVP are eligible for use in extending intraday credit in TARGET, as well as for Eurosystem monetary operations. Sterling money market instruments are due to be settled in CREST from the middle of 2003. From EMU entry, the removal of limits on the provision on intraday credit should allow banks taking delivery of securities, but not having sufficient funds on their account to pay, to use the securities being delivered as collateral against which to obtain intraday euro liquidity from the Bank (ie 'self-collateralisation').

Other changes EMU entry would require a number of other changes to the Bank of England.

- *Accounting systems* On entry, the Bank of England would need to adopt Eurosystem accounting conventions, which differ in some respects from accounting conventions under UK GAAP†. The Bank would also need to ensure that it could meet ECB reporting requirements on time and in the format required.
- *Statistical requirements* The Bank of England would need to introduce new statistical forms to provide the data required by the ECB for monetary policy purposes, and to comply with the ECB definition of eligible liabilities for minimum reserve requirements. Monetary and financial institutions† would need to adapt their own reporting systems accordingly. In particular, the ECB would require a fuller breakdown of business with the rest of the euro area. The ECB also requires monthly balance of payments figures, and additional detail for the compilation of financial accounts for the euro area. The Bank is co-operating with ONS to make maximum use of existing sources, but some additional data collection would be needed for UK entry.
- *Registrar's Department* The main tasks of the Bank of England Registrar's Department would be: on entry, to handle the redenomination of gilts, using the method determined by the Government; and from entry, to handle the registration of euro-denominated gilts (and other registered stock), and generate dividend and redemption payments for them. Similarly, the Department would handle redenomination of sterling debt managed on behalf of issuers other than the British Government.
- *Banknotes* The Bank of England would also have to plan for the introduction, at the appropriate time, of UK euro banknotes in place of sterling banknotes, and the withdrawal of sterling notes.

B WHOLESALE/RETAIL INTERDEPENDENCIES: TECHNICAL ISSUES

44 In the event that the UK were to join EMU, and a managed transition were adopted for the changeover from sterling to euro (as indicated in HM Treasury's *Sixth Report on Euro Preparations,* July 2002), sterling *wholesale financial markets* would operate in *euro* immediately from the entry date, whereas *retail financial services* would remain largely in *sterling* until later in the transition period after entry.

- If preparations for possible UK entry were to begin to be implemented in earnest around a year in advance of entry, wholesale preparations would be complete by entry, but retail preparations could not be completed within the same timescale. The main retail services in euro that banks would currently expect to be available on entry, and once retail preparations were complete, are shown in the box (and illustrated in Chart 2).
- Banks and other financial institutions expect that, in accordance with experience in the first wave, the vast majority of their retail customers would wish to continue using sterling rather than euro until late in the transition period, and would not request euro accounts or use euro services on a substantial scale until after banks' retail preparations were complete.

BANKING SERVICES IN EURO UNDER A MANAGED TRANSITION

Banking services expected to be available in euro on entry

In describing the banking services in euro that would be available for personal and small business customers on entry under a managed transition, there is a distinction between the payment infrastructure and individual bank services. This is because the provision of payment services is dependent on the largest members of the relevant payment system all being able to receive payments, whereas the availability of services such as offering euro accounts and originating euro payments for customers is a matter for individual banks to decide.

Payment infrastructure

- *NewCHAPS* has (since August 2001) settled same-day, high-value euro payments without any practical capacity constraint. From entry, settlement in CHAPS would take place only in euro, but bank customers would still be able to send and receive payments in sterling. CHAPS Clearing Company Settlement Members are discussing the technical options open to the Company for processing euro and sterling payments during the transition period. Following this, a recommendation will be made to the CHAPS Board.
- *BACS* (electronic payments) There would be limited capacity available for euro direct credits, and no euro direct debits.
- *Cheque and Credit Clearing* (paper-based payments) There would, as now, be limited capacity for euro cheque clearing (some 5% of typical sterling volumes); but no euro interbank paper credit clearing services would be available.
- Euro and sterling payments in BACS and the Cheque and Credit Clearing would be processed and cleared in separate streams in parallel. Consequently, banks would not have to perform conversions when sending payments. Conversions in banks' internal systems would only be necessary at the end of the process when, for example, a euro

payment was made to a customer with a sterling account. As the process would not involve any reconversions, rounding differences would be kept to a minimum.

Individual bank services

- Some banks would not offer euro accounts. Others would, but these euro accounts would have limited functionality. Euro cheque books would be available, though from some banks only on request. They would be physically distinct from sterling cheque books. Banks offering them would continue to hold their customers' euro accounts in their (limited-capacity) foreign currency account suites.
- Euro payments could also be accepted on sterling accounts (eg when a customer with a sterling account received a euro cheque or credit transfer), though each bank's capacity to make the necessary conversions would be limited.
- Customers would not be able to make other kinds of euro transactions using standard sterling accounts. In particular, it would not be possible to write euro cheques from them.
- Banks would not be able to convert the base currency (the currency used internally for bank accounting purposes) of their personal and small business customers' accounts from sterling to euro. These customers could open a separate euro account, but this would have a separate account number, and its functionality would be limited compared to their sterling accounts.

The infrastructure available to support banking services for personal and small business customers on entry, including the parallel clearing process, would be assumed to be the same as now, except that settlement between banks would take place only in euro at the Bank of England. And, as now, the services in euro provided by individual banks for personal and small business customers in the early post-entry period would be limited.

Banking services available in euro from the start of the retail changeover

Once banks' preparations for the start of the retail changeover were complete, the banking services they would be able to provide their personal and small business customers would be as follows, separating again the payment services infrastructure from other individual bank services.

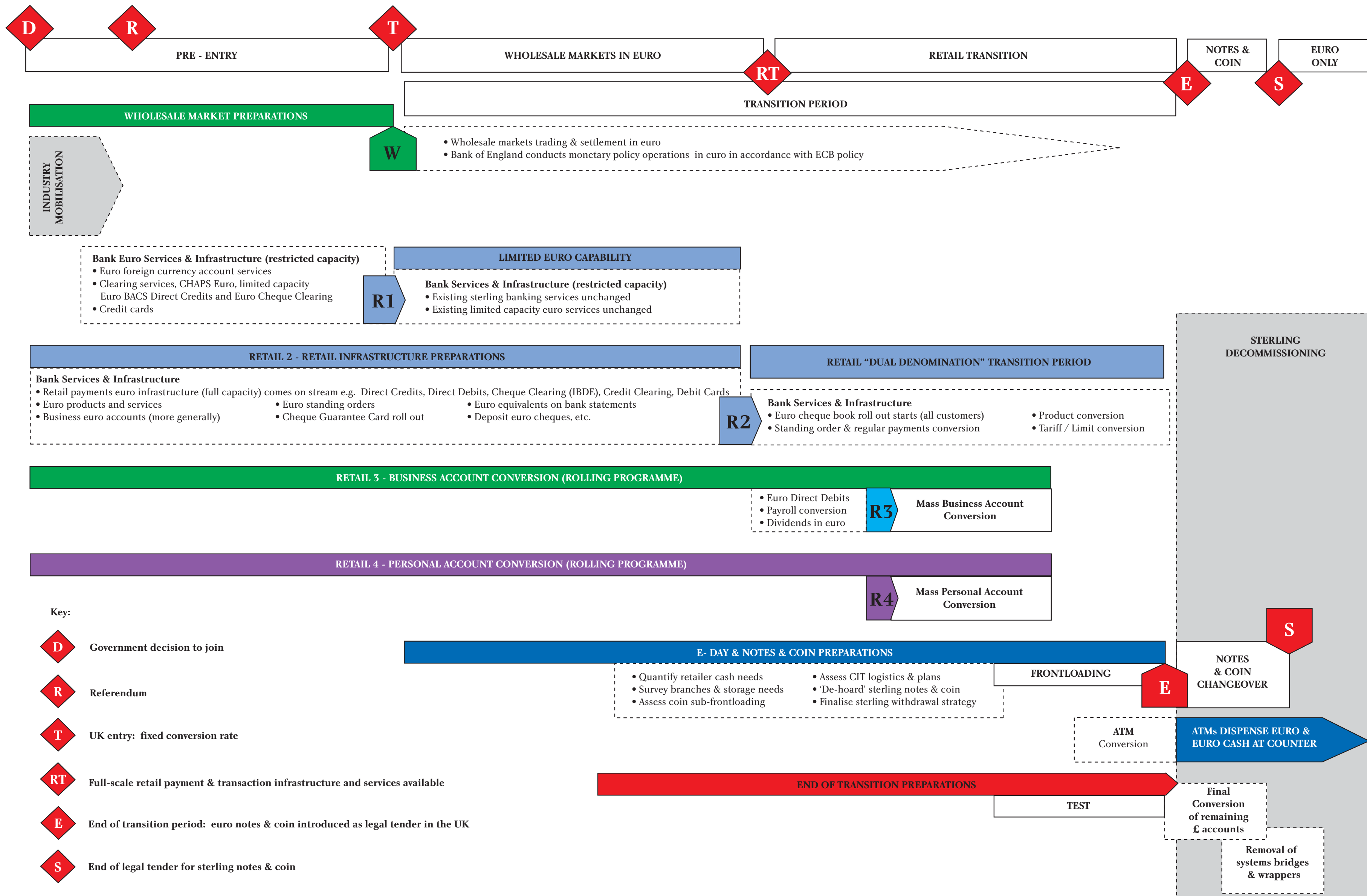
Payment infrastructure

- *BACS* It would become possible to make direct debits and standing orders in euro from both sterling and euro accounts, and direct credits in euro to both sterling and euro accounts, in volume and without practical limit.
- *Cheque and Credit Clearing* The capacity for clearing euro cheques would have increased to a level comparable to that currently for sterling volumes; and an interbank paper credit service in euro would become available.

Individual bank services

- Euro accounts with full functionality would become widely available for customers.
- Banks would be able to convert large volumes of payments between euro and sterling, as these would be automated.
- The euro functionality of sterling accounts would no longer be limited. Euro direct credits, direct debits and standing orders could be drawn on them. Some banks might also offer euro cheques on sterling accounts, which would mean customers would no

CHART 2: BANK EURO SERVICES & INFRASTRUCTURE



Source: The UK Banking Industry Outline Euro Blueprint

longer need separate euro and sterling accounts, but others might postpone this until shortly before the end of the transition period.

- The timing and method of the conversion from sterling to euro accounts would be determined by each individual bank. On conversion, account numbers would remain unchanged.

45 The focus in Section B is on gilts and equities, because these are the securities held most widely by retail investors.

46 Financial institutions operating in the wholesale markets in euro would need to meet the continuing demand for sterling-denominated services from their retail customers. In doing so, a number of technical issues would arise, particularly for banks, brokers and registrars, in the period between entry and when banks' retail preparations were complete. Assuming that changes in the financial infrastructure in the period before entry, including changes currently planned, did not have a significant impact on wholesale/retail interdependencies, the main technical issues to be resolved would be the following.

Gilt and equity transactions

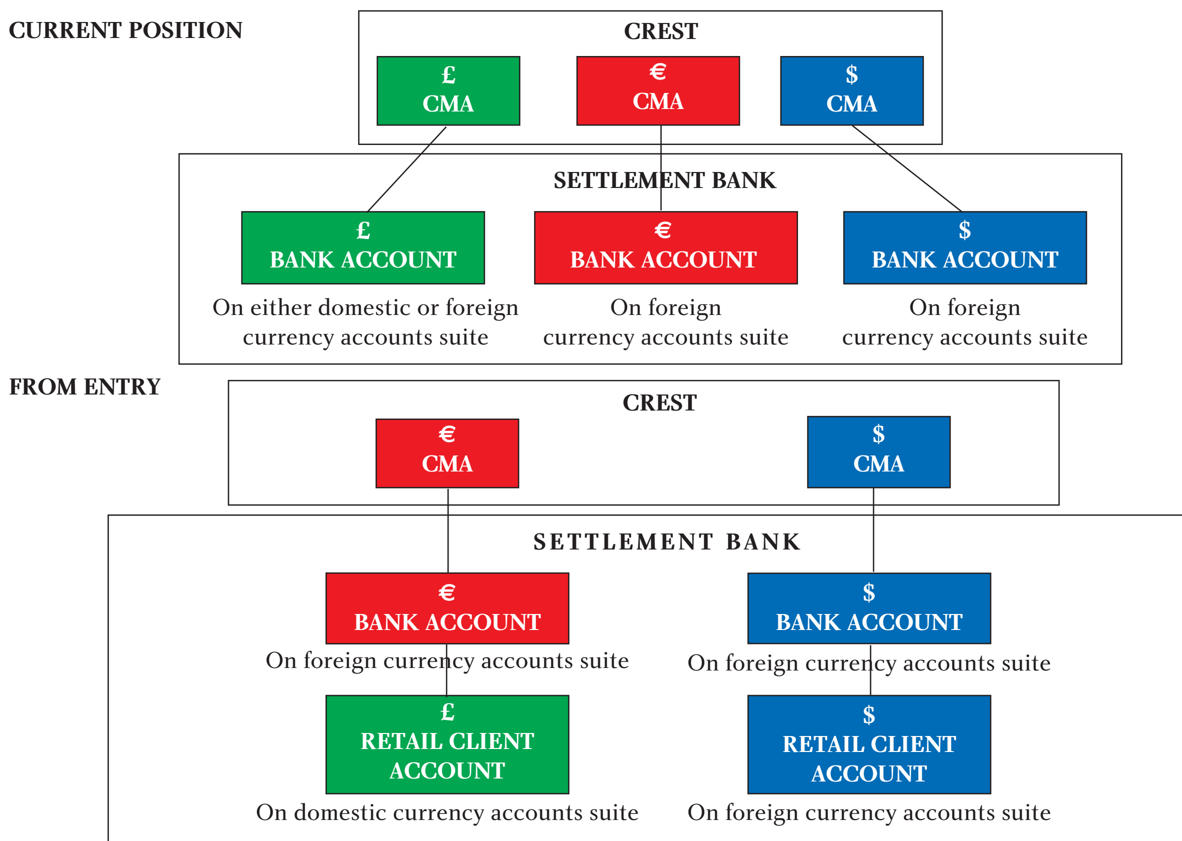
47 At present, market makers in gilts and UK equities trade and settle in CREST in sterling. Retail brokers deal with both market makers and their retail clients in sterling. (Retail brokers are required to keep client money in a separate account.) CREST participants hold, in CREST, cash memorandum accounts (CMAs†) in sterling. Sterling CMAs are linked to brokers' sterling bank accounts, most of which are held on banks' (high-capacity) domestic suites of accounts, but some of which are held on banks' (relatively low-capacity) foreign currency suites of accounts.

48 From entry, market makers in gilts and UK equities would trade and settle in CREST in euro (though it is possible that, even before entry, some UK equities could trade in euro). Subject to market consultation, gilt trades outstanding in sterling at entry would be converted by CREST into euro. In the case of debt instruments not redenominated on entry, and equities, CREST has proposed that transactions outstanding at entry should settle in sterling for a period of 25 business days thereafter. At the end of the 25-day period, CREST would either convert all the outstanding transactions into euro, or request the market participants concerned to delete their sterling transactions and re-input them in euro. All CREST participants would need to have established euro CMAs prior to entry (most have already done so). All euro CMAs are linked to euro accounts held on banks' foreign currency account suites.

49 From entry, market makers would expect to operate in wholesale financial markets in euro only, rather than sterling, and it is assumed that they would each have only one euro CMA. Retail brokers would deal with market makers either in euro or in sterling, and with their retail clients predominantly in sterling. In the case of each broker, the broker's bank would need to link a CMA-related account in euro to a retail client money account in

sterling (Chart 3). Both banks and brokers would prefer this approach, in the period before banks' retail preparations were complete. This is because the broker could use the sterling account to make payments to and from retail clients, whereas the broker's bank would need only to convert the total value of sterling payments between the broker's euro and sterling accounts, thus reducing to a manageable level the number of conversions banks would need to perform (Chart 4).

CHART 3: LINKAGES BETWEEN CREST CASH MEMORANDUM ACCOUNTS AND BANK ACCOUNTS

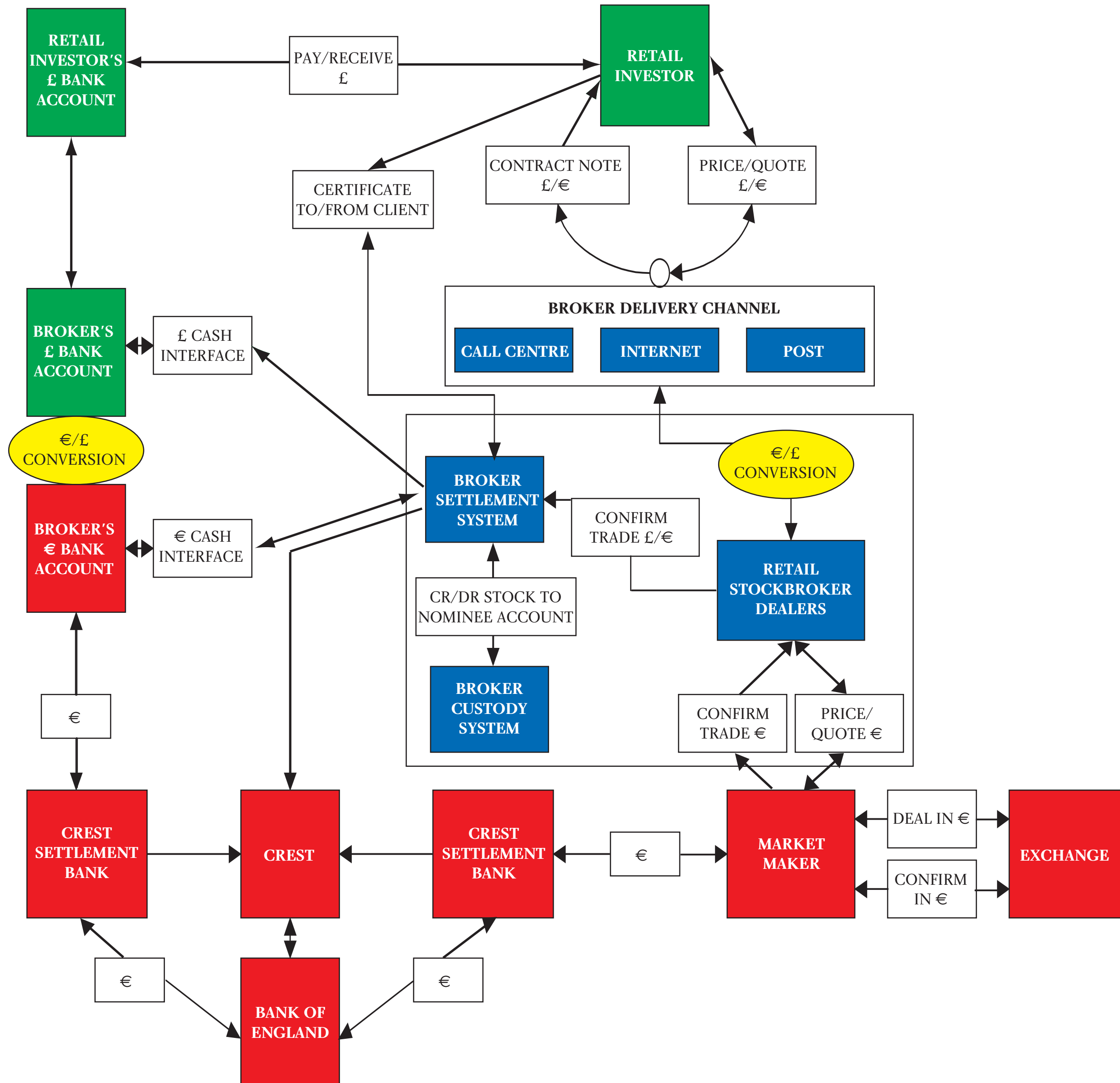


Source: The UK Banking Industry Outline Euro Blueprint

Gilt coupons and redemptions

50 Once gilts were redenominated at entry, the Bank of England Registrar's Department would expect to pay gilt coupons and redemptions in euro. Institutional investors would hold euro accounts and expect to receive payments in euro, while retail investors would continue to hold sterling accounts and generally expect to receive payments in sterling. Banks would therefore need to credit their retail client accounts in sterling. The banks consider that there would be sufficient capacity from entry to cope with the current level of 1 million BACS payments and 600,000 cheques in euro each year, including both interest and redemption payments, provided that there would not be any major claims on available capacity from other euro retail payments (eg from dividend or salary payments).

CHART 4: INTER-RELATIONSHIP BETWEEN RETAIL BROKERS AND WHOLESALE MARKETS



Source: The UK Banking Industry Outline Euro Blueprint

UK companies' dividends and share capital

51 A smooth and orderly changeover, under a managed transition, would require the following.

52 *Dividend payments* Registrars currently make over 60 million share dividend payments on behalf of UK companies each year (one third via BACS and two thirds by cheque); and normally expect to pay all the shareholders in any company in only one currency, except where a company pays shareholders abroad in their local currency. Shareholders are rarely allowed to elect the currency in which dividends are paid and, in the event of UK entry, registrars would not propose to offer shareholders a choice between sterling and euro during the transition period. After UK entry (T), if registrars made dividend payments in euro, banks would not have the capacity, until their euro retail preparations were complete (RT), to convert the high volume of dividend payments for their retail customers, whose accounts

would remain in sterling until late in the transition period. By contrast, if registrars made dividend payments in sterling, banks would have the capacity to convert to euro the relatively low volume of payments for their institutional customers.

- So, under a managed transition, UK companies would need to continue instructing their registrars to make dividend payments to their shareholders in sterling until RT: after RT and until the end of the transition period, UK companies could choose to instruct their registrars to pay in either sterling or euro.
- And UK companies should consult their registrars in advance about the timing, during the transition period, of the conversion to euro of their dividend payments.

53 *Flotations and rights issues* Many UK retail investors subscribe to flotations or rights issues by cheque, and euro cheque books would not be widely available between T and RT.

- So, in the event of flotations or rights issues during the transition period, UK companies should allow an investor to subscribe in sterling, or in euro through CREST, if the investor wished.
- And UK companies would need to instruct registrars to pay refunds on subscriptions for new issues in the denomination in which the subscription was received, and settle the 'on-sold' rights not taken up by investors either in euro through CREST or by cheque in sterling, at least until RT.

54 *Timing and method of redenomination of share capital* UK companies would be free at any time after T to decide when to redenominate their share capital from sterling to euro. But companies, and their banks, registrars, brokers and investors, would have a collective interest in avoiding a large number of costly corporate actions.

- So, if and when companies were to decide to redenominate to euro their share capital, they should do so using a method which would leave the number of shares held by each shareholder unchanged.

55 UK legislation would be necessary to facilitate the voluntary redenomination of share capital and rounding of par values (see below).

Guidelines to help UK companies

56 UK companies may find it helpful to follow the guidelines below, which are intended to make the changeover to the euro for their dividends and share capital as smooth, straightforward and inexpensive as possible.

(i) Timing of share capital redenomination

57 UK companies would be free to decide whether to redenominate their share capital from sterling to euro at any time after T, but would be strongly encouraged to use a method which would leave the number of shares held by each shareholder unchanged. The decision to redenominate a company's share capital and to start declaring dividends in euro would normally be taken at its Annual General Meeting (AGM), in order to avoid the expense of calling an Extraordinary General Meeting. If legislation were introduced to enable share capital to be redenominated by a directors' resolution, this would avoid the need for

shareholder approval, unless the company also wished to alter the nominal amount of each share to a round figure (renominalisation) at the same time. Renominalisation by a public company would be expected to require shareholder approval. If a company decided to proceed by shareholder resolution, it would need to consider timing and plan well in advance, taking into account the length of time needed to prepare documentation for an AGM and the need for public companies and their registrars to avoid the 'bunching' of AGMs. The redenomination of a company's share capital during the transition period could take effect either at the start of the company's financial year following the passing of the relevant resolution or, if the company so chose, at an earlier time on or after the passing of that resolution.

(ii) Declaration and denomination of dividends

58 Dividend payments would need to remain in sterling until RT. But this would not prevent companies redenominating their share capital before RT if they chose. A company would be free, where its articles of association allowed, to declare dividends in euro, or to continue declaring them in sterling. In any event, companies would need to instruct their registrars to continue paying dividends in sterling (if necessary converting from a dividend declared in euro to the sterling equivalent at the conversion rate). Any rounding issues would also need to be resolved between companies and their registrars.

59 Under a managed transition, UK companies would have available the following additional share capital and dividend options.

- After RT, any company redenominating its share capital from sterling to euro would probably also instruct its registrars to make dividend payments to shareholders in euro.
- UK companies paying dividends before UK entry in currencies other than sterling (including in euro) would be able to continue doing so after entry.

60 If shareholders received dividends in sterling on shares denominated in euro, this could lead to potential confusion, and so would best be avoided. To ensure a simple and consistent approach, it would be preferable for redenomination of share capital to become effective on or after RT or, if earlier, at least after payment of the final sterling dividend. However, companies which came to the market before RT with an issue of shares denominated in euro would need to pay any dividends before RT in sterling.

(iii) Methods of redenominating company share capital

61 After the start of the transition period, a company would have the choice of either voluntarily redenominating its share capital from sterling to euro during the transition period or waiting until it ended.

62 *Voluntary redenomination during the transition period* The par values of shares in most UK companies are currently denominated in sterling in round amounts (eg 1p, 5p, 10p, 25p, 50p or £1). If companies were to redenominate their share capital from sterling to euro, this would almost inevitably produce par values with odd amounts in euro. There are limited means under current law by which companies could redenominate their shares to euro and

renominalise them to achieve round par values. These existing procedures would be relatively cumbersome to use. A company could, for example, cancel its existing sterling shares and issue new euro shares, but any reorganisation that involved a cancellation of shares would (subject to very limited exceptions) require both court and shareholder approval. Financial institutions engaged in securities administration and custody would also have to notify individual clients of detailed changes to their holdings and issue new documentation (including, where appropriate, new share certificates). It would clearly be desirable to avoid unnecessary corporate actions, so minimising the cost and administrative burden involved as well as the potential for confusion.

63 Changes to UK company law would be required to facilitate share capital redenomination. Although further consultation on the procedure for voluntary redenomination may be appropriate, the DTI proposed in September 1998 the following framework of statutory rules.

- Companies would be required to adopt a top-down method of conversion by converting at the level of the total nominal amount of each class of shares (rather than at the level of each individual share) and rounding that amount to the nearest euro cent. This minor rounding would not trigger any requirement for court or shareholder approval. Companies would derive individual par values by dividing the converted share capital by the number of shares in the authorised share capital, leaving that figure stated to several decimal places if they so wished.
- A directors' resolution would suffice where the company was redenominating its shares into euro during the UK transition period, subject to a shareholders' power of veto.
- Companies would be permitted to adjust the resulting par value of each share to a more convenient round figure in euro, subject to shareholder approval but without the need for court approval. There would be no requirement for companies to issue new share certificates following redenomination. Any change in the total nominal share capital would be combined with a corresponding change to the company's reserves.
- Companies would be permitted to resolve that any reference in a document to share capital denominated in sterling would be read as a reference to the equivalent amount in euro.

64 If this legislation were introduced, the redenomination of share capital to euro would be permissible but not compulsory during the transition period. If a company decided to renominalise (as well as redenominate) its shares, it would have the choice of rounding up the nominal amount of each share to a convenient round figure in euro by capitalising reserves or (if it had insufficient reserves) of rounding down, probably to the nearest euro cent (see box). The DTI considers that a public company could renominalise its shares only by a shareholders' resolution, in view of the Second EC Company Law Directive governing the increase or reduction of share capital.

METHODS OF REDENOMINATING COMPANY SHARE CAPITAL: AN EXAMPLE

If the DTI's 1998 proposals are implemented, one method for companies to use to redenominate their share capital to euro, without affecting the number of shares held by investors, would be as follows.

(1) Convert authorised share capital from sterling to euro at the conversion rate and round to the nearest euro cent.

(2) Find the nominal value of each share by dividing the result at (1) by the number of authorised shares.

(3) *Either* leave the resulting nominal amount of each share stated to several decimal places (without rounding or truncating) *or* round it upwards or downwards with a corresponding adjustment to the company's reserves.

(4) The company balance sheet will show the issued (redenominated) share capital and the change to the reserves.

Example:

- Authorised share capital: £100,000 (100,000 shares of £1 each).
- Issued share capital: £75,000 (75,000 shares of £1 each).
- Assume a conversion rate of €1=£0.641234 *[Note: this conversion rate is hypothetical and used for purposes of illustration only]*.
- Authorised share capital of £100,000 converted to euro @ 0.641234 = €155,949.31 ((1) above).
- Nominal value of each £1 share = €1.5594931 ((2) above).
- If reserves are available, renominalise the par value of each share upwards to €1.60 and capitalise €3,038.02 to pay the difference (€0.0405069) on the issued shares ((3) above).
- If no reserves are available, round down the nominal value of each share to the nearest euro cent, so reducing it by €0.0094931; then multiply this amount (€0.0094931) by the number of shares in issue (75,000) to give €711.98, which amount is transferred to a special undistributable reserve ((3) above). A similar transfer will be necessary if any of the 25,000 unissued shares are subsequently issued.

If the shares are renominalised upwards to €1.60 each by capitalising reserves, the authorised share capital would be €160,000, the issued share capital would be €120,000 and reserves would be reduced by €3,038.02 ((4) above).

Alternatively, if the nominal amount of each share is rounded downwards to the nearest euro cent, the authorised share capital would be €155,000, the issued share capital would be €116,250 and reserves would be increased by €711.98 ((4) above).

65 *No par value shares* Another method of avoiding the problems otherwise arising on redenomination would be for the legislation to allow 'no par value' (NPV) shares. Instead of individual shares having a fixed nominal value, each NPV share would represent a proportion of a company's total share capital. The number of shares in issue could remain the same: there would be no par value to redenominate; no resulting decimal figures to round or renominalise; and changes to registers and certificates would be minimal. It would also avoid the need to cash out any awkward fractional interest which might arise when shares

are redenominated and renominalised. There is considerable support in the UK for the 'true' type of NPV share. It would not have any monetary relationship to a company's share capital and would simply represent a fractional share in the company's total net worth. However, in the case of public companies, this type of NPV share, which is commonly used in the US, would not appear to be compatible with the Second EC Company Law Directive in its present form.

66 The High Level Group of Company Law Experts appointed by the European Commission (under the chairmanship of Jaap Winter) to consider the modernisation of company law in Europe has reported that there is wide demand for NPV shares. As there are differing views on the extent to which the Second EC Company Law Directive would need to be changed to permit this type of share, the Group has recommended in its report dated 4 November 2002 a review of how NPV shares can be accommodated.

67 *Conversion at the end of the transition period* It is desirable that the legislation should clarify what would happen at the end of the transition period to sterling share capital which had not formally been redenominated to euro in advance. The legislation would probably provide for automatic (mandatory) conversion of sterling share capital to euro at the conversion rate, using the top-down method as set out above. The legislation should also state whether the nominal value of each share so converted would be left stated to several decimal places or rounded to the nearest euro cent. Rounding could give rise to significant differences in the case of shares with small nominal amounts and it may be best if rounding of nominal values is made possible but not compulsory. If this approach were followed, companies could still choose, after conversion had occurred, to renominalise their shares by a shareholder resolution should the above legislation be adopted.

(iv) Share option schemes

68 Company share option schemes would also need to be converted from sterling to euro. The timing of the conversion of these schemes would be affected by:

- the conversion of statutory limits by the Government, in the case of Inland Revenue approved schemes, from round sterling to round euro amounts;
- the conversion of the company payroll from sterling euro, primarily in the case of SAYE schemes and SIPs; and
- the wishes of the scheme administrator, in the case of these latter schemes.

69 In order to avoid a large number of euro payments between T and RT, the following approach is recommended.

70 *Save As You Earn (SAYE) share option schemes* Assuming that SAYE limits would continue to be expressed up to RT in sterling, and thereafter in euro (with the sterling equivalent provided for information), SAYE deductions should remain in sterling until the company's payroll system switched to euro. The switch in the company's payroll should take place on or after RT, so as to prevent a large number of payments being generated in euro before retail financial preparations were complete. Thereafter, all new SAYE contracts should be denominated in euro. Existing company SAYE contracts should continue in sterling until the end of the transition period, unless the terms of the contract include an option to

redenominate earlier and this is exercised, with deductions being converted to euro from the date of payroll conversion.

71 *Share Incentive Plans (SIPs)* Assuming that the limits for partnership shares, free shares, matching shares and dividend shares would switch from sterling to euro at the start of the tax year after RT, SIPs administrators should continue to run plans in sterling before that date, and provide new plans in euro after that date. However, it is expected that the Inland Revenue would permit payroll deductions to continue in sterling until the company's payroll switched to euro. Administrators could choose when to switch existing plans to euro. The switch should coincide with the conversion of the payroll to euro.

Interest day-count conventions

72 While interest on money market instruments denominated in *euro* is conventionally quoted and calculated using a day-count convention of actual/360, the day-count convention used by banks for both money market and retail transactions in *sterling* is actual/365. The resulting amounts of interest payable differ for the same nominal rate. Day-count conventions determine how a quoted interest rate is to be interpreted where the fraction is not explicitly stated.

73 In the event of UK entry, the wholesale money market would operate on the basis of actual/360 rather than actual/365 from T, and financial institutions would need to consider the implications for their treasury management of any differences. In addition, a number of technical questions would need to be addressed by financial institutions in relation to their retail customers. In this context, retail transactions would be those where the rate of interest was not explicitly linked to a money market rate, and might include some transactions with large customers and counterparties. The technical questions would include the following.

- How would financial institutions deal with the relationship between two different day-count conventions? Would the nominal interest rate offered be different, reflecting the difference in the calculation of the day count (eg 5% under actual/360 would be adjusted to 5.0694444% under actual/365)?
- How should financial institutions explain the difference between the two day-count conventions to their customers? Would the current requirements for the annual equivalent rate of interest adequately address this issue? And how would financial institutions ensure that it was clear on which basis an interest rate was being quoted?

74 The banks' current view is that, during and after the transition period following UK entry, rates should be quoted with actual/365 for products that were not explicitly market-linked, and actual/360 for market-linked rates, with appropriate annotation where the presumption did not apply. Their view is set out in more detail in the box.

INTEREST DAY-COUNT CONVENTIONS

The banks and building societies first considered in 1997 the question of what day-count basis to use if sterling joined the euro, and have subsequently discussed with the Irish Bankers' Federation the practical implications in the light of the Irish experience.

It is not clear that actual/360 could or should be extended from the wholesale markets to retail accounts, and there are considerable practical and legal difficulties in so doing. The banks' current view is therefore that, during and after any transition period following UK entry:

- rates would be quoted with actual/365 as the presumption for products that were not explicitly market-linked;
- rates would be quoted with actual/360 as the presumption for market-linked rates;
- there would be appropriate annotation where the presumption did not apply (at minimum – banks would be free to annotate all rates);
- the annual equivalent rate of interest (AER†) and the annual percentage rate of interest (APR†) would be calculated on an actual/365 basis;
- there would be no constraint on individual banks' use of either basis of calculation but the AER/APR would have to reflect the basis used appropriately.

This position is consistent with that adopted in Ireland, where actual/360 rates have in practice been made available only to those customers who have direct access to bank dealers or where rates are explicitly linked to EURIBOR.

The banks have not considered the question of calculation of interest in non-banking transactions, for example under *The Late Payment of Commercial Debts (Interest) Act, 1998*, which does not specify a day-count basis. In this example, the prescribed rate is 8% above the Bank of England's official dealing rate per annum, and the number of days for which interest is payable is clearly set out, but the actual calculation is not prescribed.

All financial institutions will have to consider the day-count basis to be used for retail products and services and the implications for their treasury management of any differences with the wholesale markets. The BBA would be interested to learn of specific situations where clarity would be helpful.

UK EURO CHANGEOVER: SUMMARY

This box summarises the main technical assumptions about a changeover in sterling financial markets, and identifies in each case (in italics) those who would be responsible for taking decisions.

Financial instruments issued before, and outstanding at, entry

(i) Nominal values

- *Treasury bills* If dematerialised, Treasury bills would be redenominated on entry, using the same method as for gilts. The market would be consulted before a decision was taken. *For decision by HMT/DMO.*
- *Other money market securities (including CDs)* If dematerialised, there would be three main options: run-off in sterling: redenomination on entry; or redenomination at a later date. The choice would be for the market. Any remaining bearer instruments would not be redenominated. *For decision by individual market firms.*
- *Bank deposits* The principal amounts outstanding on entry would not be converted. *For decision by individual market firms, with BBA guidance.*
- *Syndicated bank loans* Except where the loan documentation makes specific provision for UK entry, the principal amounts outstanding and the total commitment would not be converted until the end of the transition period. *For decision by individual market firms.*
- *Gilts in registered form* would, under UK legislation, be redenominated on entry by individual holding (by cash stock account), and rounded to the nearest euro cent. Index-linked gilts would continue to be linked to the UK retail price index. *For decision by HMT/DMO.*
- *Gilts in bearer form*, of which there are 13 issues, would be deemed to be redenominated on entry, but without requiring an actual exchange of paper instruments or physical ‘stamping over’. The UK legislation covering gilt redenomination might need specifically to provide for this. *For decision by HMT/DMO.*
- *Gilt strips* In the event of UK entry, the euro threshold would be expected to be €10,000. *For decision by HMT/DMO.*
- *ISINs* To date there has been an assumption that ISINs on gilts and other sterling debt instruments should not change on redenomination. It would be for market firms to consider this approach. *DMO and CREST will consult the market. The decision about gilts will ultimately rest with the issuer.*
- *Bonds by other issuers (sovereigns, supranationals and corporates)* Under UK legislation, sterling bonds by other issuers under English law could be redenominated, using the same method as for gilts; if corporate issuers wished to redenominate their sterling bonds, they would be encouraged to do so at an interval after entry, to minimise the market’s workload at entry. If issuers did redenominate, the IPAA would prefer them to do so on a coupon date. Bearer bonds (eg sterling Eurobonds) would not be redenominated. *For decision by issuers.*
- *Share capital* Subject to any UK legislation, it would be up to companies whether, and if so when after entry, to redenominate their sterling share capital into euro, preferably using a method which left unchanged the number of shares held by each shareholder, in order to avoid corporate actions. *For decision by issuing companies, subject to market guidance (in Section B).*

- *Over-the-counter derivatives* contracts outstanding in sterling at UK entry would be expected to run off in sterling rather than be converted into euro. *For decision by individual market firms, with guidance from ISDA.*

- *Exchange-traded derivatives* Open positions on *Short Sterling* contracts expiring after entry would be converted on a mandatory basis using a ratio set by the LIFFE Board. In the case of *gilt contracts*, all delivery months listed after a decision on UK entry would have a notional value denominated in euro. The contract size would be determined after market consultation. In the case of *equity index contracts*, individual equity options would reflect the denomination in which the underlying share was quoted. On indices, a standard euro-denominated multiplier would be used for all newly introduced contract months. *For decision by LIFFE.*

(ii) Cash-flow payments

- After UK entry, the Bank of England Registrar's Department would make cash-flow payments (ie interest and repayment of principal) on *gilts* in euro. *For decision by HMT/DMO.* Issuers of *other sterling* debt would make cash-flow payments in euro, whether or not the financial instruments concerned had been redenominated, with banks converting euro payments into sterling for their personal and small business customers. The only exceptions would be cash-flow payments on non-gilt securities managed by the Bank Registrar's Department and unquoted loan stocks, which would continue to be made in sterling until the end of the transition period, unless the issuer chose to redenominate earlier. *For decision by individual issuers.*

- *Euro/sterling swaps* would give rise to cash flows in both directions during the transition period. If there were market demand for a multilateral protocol along the lines of ISDA's 1998 EMU Protocol, parties could determine whether payments between them should be made gross or net by adhering to the Protocol. Market participants that did not do so would be expected to be able to cope with netting payments on the basis of bilateral agreements. *For decision by individual market firms, with guidance from ISDA.*

- In the case of *equities*, from UK entry, institutional investors would generally want payment in euro, but small investors in sterling. Company registrars would continue paying dividends in sterling, subject to the guidelines drawn up by banks, registrars and representatives of issuing companies. Banks would convert sterling payments into euro for institutional investors. *For decision by companies, subject to market guidance (in Section B).*

(iii) Market conventions

- Short-term sterling-denominated *money market* instruments and interbank deposits would keep existing conventions, except in the case of LIFFE's Short Sterling contract, which already allows for the possible adoption of euro market conventions, in the event of UK entry. *For decision by individual market firms, with guidance from LIFFE, where relevant.*

- Gilts already use the same market day-count conventions as the euro area (ie actual/actual). However, payment dates on gilts would probably change to TARGET business days, when gilts were redenominated. It is expected that gilts would continue to be issued with semi-annual rather than annual coupons. *For decision by HMT/DMO.*

- *Other issues of sterling bonds* currently use a day count of actual/365 in the case of domestic issues, and 30/360 in the case of international issues. If redenominated, market participants would prefer market conventions (ie the interest day count and

payment dates) on these bonds not to change. *For decision by individual market firms, with guidance from IPMA and ISMA.*

New financial instruments issued after entry

- *New financial instruments* issued after UK entry would be denominated in euro rather than sterling, as would the associated cash-flow payments. There are some possible exceptions (see Section A). *For decision by individual market firms.*
- *Market conventions* New financial instruments issued in euro after UK entry would use the then prevailing euro market conventions, which differ from the currently used sterling market conventions in a number of ways (see Section A). *For decision by individual market firms.*
- *Day-count conventions* From UK entry, interest rates would be quoted with actual/365 for products that were not explicitly market-linked and actual/360 for market-linked rates, with appropriate annotation where the presumption did not apply. In the event of UK entry, all financial institutions would have to consider the day-count basis to be used for products and services for their personal and small business customers and the implications for their treasury management of any differences with the wholesale markets (see Section A). *For decision by individual market firms, with guidance from the BBA.*
- *Settlement periods* If normal settlement periods in the sterling money market were to conform to those in the euro market, this would mean changing to longer settlement periods, and increasing settlement risk, in some cases. *For decision by individual market firms, with guidance from the BBA.*
- *Business days* CHAPS and CREST, which would settle only in euro from UK entry, would have to be open on all TARGET business days. BACS and the Cheque and Credit Clearing could settle only on days on which CHAPS was open, and would remain closed on UK Bank Holidays, in accordance with existing practice. Exchanges, like the London Stock Exchange and LIFFE, might continue to be closed on UK Bank Holidays, even when these were TARGET business days, as is currently the case with many exchanges in the euro area. *For decision by individual market firms, with guidance from APACS, CREST, the London Stock Exchange and LIFFE.*

Financial transactions undertaken before entry but settled afterwards

- *Over-the-counter transactions* It is not yet clear whether market practitioners would prefer OTC transactions to run off or be converted, except for OTC derivatives, which would be allowed to expire, though a limited number of market practitioners might agree to convert them on a bilateral basis. *For decision by individual market firms, with guidance from ISDA in the case of OTC derivatives.*
- *Money market and foreign exchange transactions* entered into in sterling prior to UK entry but settled afterwards would be expected to be settled in euro in accordance with the counterparty's existing SSIs for euro payments. Market participants should review their settlement arrangements in good time before entry, and any necessary SSI changes should be provided to counterparties at least six weeks before entry to allow time for processing. Sterling SSIs should not be used for market transactions after UK entry, but settlement of transactions with customers and non-market participants would be able to continue in sterling after entry until the end of the transition period. *For decision by individual market firms, with guidance from BBA/APACS.*

- Transactions involving sterling *price sources* would be replaced with euro price sources. The WMBA has already decided that SONIA would be replaced by EURONIA. The BBA has not yet decided how it would replace sterling LIBOR and would consult the market before doing so. If sterling LIBOR (which is fixed on a t+0 basis) were replaced by euro LIBOR or EURIBOR (which are fixed on a t+2 basis), there would be a mismatch between the value date and the corresponding period starting date. For sterling syndicated loans, the treatment of fixings would depend on the provisions in the loan documentation (see Section A). *For decision by market firms, with guidance from the BBA, where relevant.*
- In the case of *gilts and any other debt instruments redenominated* on entry, financial transactions undertaken in sterling before entry but settled afterwards would, subject to market consultation, be settled in euro. Market firms would not reconfirm trades following redenomination, unless bilaterally agreed otherwise. *For decision by individual market firms.*
- In the case of *repo* transactions, market participants would be encouraged to change over to euro in a particular way (see Section A). *For decision by individual market firms.*
- In the case of *debt instruments* not redenominated on entry and *equities*, CREST proposes that transactions outstanding at entry should settle in sterling for a period of 25 business days after entry, when it would either convert to euro or request market firms to delete and reinput in euro. *For decision by CREST.*

Financial transactions undertaken after entry

- *Cash and derivatives* transactions undertaken after entry would be settled in euro, unless bilaterally agreed to settle in sterling. *For decision by individual market firms.*
- In the case of *debt* instruments, the considerations (including accrued interest) would be calculated in euro and settled in euro after entry. *For decision by individual market firms.*
- In the case of *equities*, the London Stock Exchange has proposed that all shares not already priced in euro (rather than sterling) before entry would be priced in euro from entry, and all equity transactions after entry should be priced and settled in euro (rather than sterling). *For decision by the London Stock Exchange.*

GLOSSARY

AER Annual Equivalent Rate: an interest rate defined in the Code of Conduct for the Advertising of Interest Bearing Accounts published by the BBA and the Building Societies Association.

APR Annual Percentage Rate: the interest rate which has to be quoted in advertisements and quotations for credit regulated by the Consumer Credit Act 1974.

Bund contract A bond futures contract, based on a notional long-term debt instrument issued by the German Federal Government with a term of $8^1/_2$ to $10^1/_2$ years and an interest rate of 6%.

Central counterparty Sometimes referred to as 'CCP': is legally interposed between buyer and seller in member-executed transactions. Although it is more common for CCPs to accept transactions that take place on exchanges, eg derivatives and equities, they are increasingly willing to accept OTC products, including interbank interest-rate swaps, repos, cash bonds and commodity derivatives.

CMA Cash Memorandum Account: maintained by CREST in the name of a member. The member makes cash postings to the account, which records the cumulative (net) balance, at any time in the course of the settlement day, of payments made and received in the relevant designated currency by that member.

DVP Delivery-Versus-Payment: a mechanism in an exchange-for-value settlement system that ensures that the final transfer of one asset occurs only if the final transfer of another asset occurs simultaneously. Assets may include money, securities or financial instruments.

Enquiry Link The system that allows account holders in the UK RTGS Processor to interrogate balance and other information, and to perform certain other functions; supported by the SWIFTNet Network.

EONIA Euro Overnight Index Average: the weighted average, to two decimal places, of all overnight unsecured lending transactions in the interbank market, initiated by the EURIBOR contributing panel banks; calculated by the ECB.

EURIBOR Euro Interbank Offered Rate: the average rate at which euro interbank unsecured term deposits are offered by one (EURIBOR panel) prime bank to another prime bank; displayed to three decimal places and published at 11:00 central European time (CET); sponsored by the EBF and the ACI.

Euro LIBOR Euro London Interbank Offered Rate: the average rate at which the 16 UK-based contributor banks can borrow unsecured funds in euro, displayed to five decimal places and published at 11:00 London time; fixed by the BBA.

EURONIA Euro Overnight Index Average: the weighted average rate, to four decimal places, of all unsecured euro overnight cash transactions brokered in London; calculated by the WMBA.

FSMA Financial Services and Markets Act (2000): provides a single legal framework for the FSA, and sets the statutory objectives, and principles of good regulation, for its operations.

GAAP Generally Accepted Accounting Principles.

ISIN	International Securities Identification Number: a standardised identification (eg GB0031790826) of securities and other financial instruments within a uniform system.
Legacy currencies	The former national currencies of the countries participating in EMU.
LINX	London Internet Exchange: a not-for-profit partnership of Internet Service Providers, providing a physical interconnection for the exchange of internet traffic.
Monetary and financial institutions	In a UK context, monetary and financial institutions are broadly equivalent to banks and building societies.
MRO	Main Refinancing Operation: regular OMO used by the ECB to provide 14-day funds to the banking system.
OATs	Obligations Assimilables du Trésor: French Government securities issued with maturities of 7 to 30 years.
OMO	Open Market Operation: transaction undertaken between a central bank and its money market counterparties, at the initiative of the central bank.
PIBOR	Paris InterBank Offered Rate: no longer quoted.
PVP	Payment-Versus-Payment: a mechanism ensuring that final payment of one sum takes place only if the final transfer of the other sum occurs simultaneously.
RTGS	Real-Time Gross Settlement: the gross settlement in real time of payments across settlement accounts maintained at the central bank.
SONIA	Sterling OverNight Index Average: the weighted average rate to four decimal places of all unsecured sterling overnight cash transactions brokered in London; calculated and published by the WMBA.
SSIs	Standard Settlement Instructions: used by firms in the wholesale market to facilitate the payment and settlement process, by making available to counterparties standardised instructions regarding relevant bank or settlement account details.
STIR	Short-Term Interest Rate: normally used in the context of a three-month interest rate futures contract.
TARGET	Trans-European Automated Real-Time Gross Settlement Express Transfer system: links the 15 euro-denominated RTGS systems in the EU and the ECB payment mechanism, to provide an EU-wide RTGS system.