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**THE DEVELOPMENT
OF THE INTERNATIONAL
BOND MARKET**

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Abstract

The 1980s were a period of very rapid expansion for the international bond market. It now constitutes a major avenue for cross-border capital flows, and accounts for some 11% of the total nominal outstandings in the global bond markets.

This paper is intended to provide an overview of the international bond market. The main theme running through the account is the relationship between the international and domestic bond markets, which has both a competitive and a complementary aspect. In the first section the market is examined in its historical context, with particular emphasis on the Euro-bond market, which now accounts for three-quarters of all international bonds. The differences between Euro-bonds, foreign bonds and domestic bonds are described and the reasons for the use of international bonds are reviewed.

The second section of the paper deals with the way in which the Euro-bond market is organised, and looks at the trading conventions employed, the importance of bearer status and the absence of withholding tax, and the functioning of the primary and secondary markets. In the third section borrower and investor behaviour in the market are described, together with some important technical innovations which have influenced the market's development.

The prospects for the international bond market in the 1990s are discussed in the concluding part of the paper. It is suggested that the potential for a further diversion of business from the domestic to the international market exists mainly in Europe and in particular in the growth of a large ecu bond market.

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THE DEVELOPMENT OF THE INTERNATIONAL BOND MARKET*

Introduction

The international bond market – a market for foreign currency bonds issued and traded across national boundaries¹ – has played an important role in the internationalisation of capital markets which has taken place since 1980. During the 1980s, the international sector's share of total nominal outstandings of the main bond markets advanced from 4 to 11% (see Graph 1).²

The international bond market has been particularly successful in attracting private sector borrowing away from domestic markets. Public sector issues constitute more than two-thirds of the capitalisation of the world bond markets, but governments make very limited use of the international sector (see Figure 1). On the other hand, more than one-fifth of private sector bond issues outstanding at the end of 1990 had been made on the international markets.

Even though bonds are issued and traded across borders, as far as the vast majority of borrowers are concerned³ most transactions

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The views expressed in the paper are the author's and not those of either the BIS or the Bank of England.

¹ A more detailed definition of international bonds is provided in Section I.(b) of the paper.

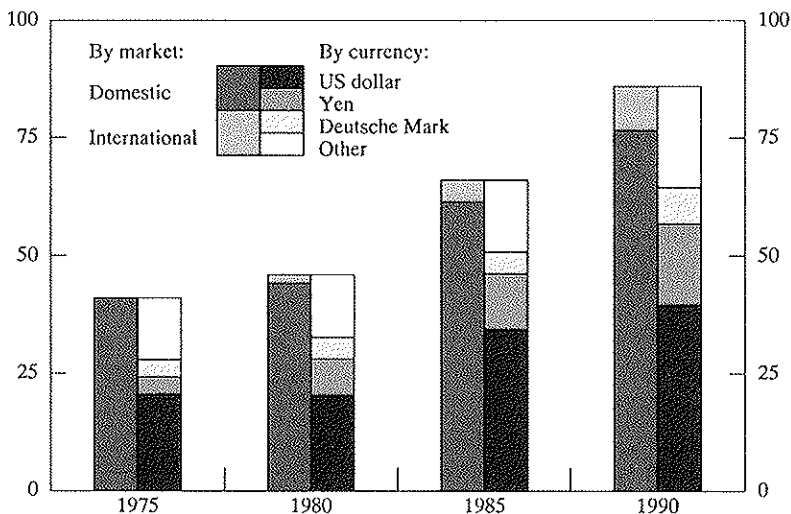
² In Graph 1 and throughout the paper outstanding stocks of bonds are reported in terms of nominal amounts rather than at market prices.

³ The exception is supranational institutions – such as the World Bank – whose issues are by definition international bonds. Supranational institutions, however, only account for some 12% of all international bonds.

Graph 1

The development of the world bond markets^{1, 2}

Total nominal bonds outstanding at end of period, as a percentage of total GNP³



¹ Coverage: United States, Japan, Germany, Italy, United Kingdom, France, Canada, Belgium, Denmark, Sweden, Switzerland, the Netherlands and Australia.

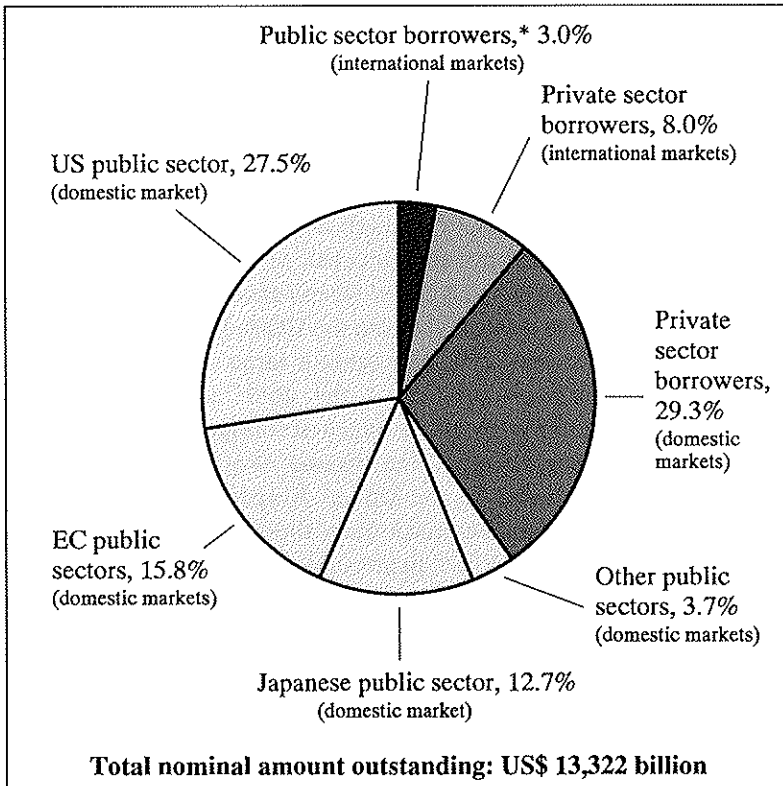
² The total for 1975 does not include international bonds denominated in US dollars at this date, for which no information is available.

³ Total bonds outstanding, converted at current exchange rates, were \$1,490, 3,300, 5,860 and 12,886 billion respectively for the years shown.

Sources: Benavides/Salomon Brothers Inc., BIS (1991).

could be conducted on the borrower's domestic bond market. It follows that the international and domestic bond markets are (to a degree) in competition with one another. For this reason, although this paper is primarily concerned with the development of the international bond market, an attempt is made to examine the subject in the context of the world bond markets as a whole. After the first section, which looks at the distinguishing features of international bonds and the reasons why they are used, the remainder of the paper is concerned with the extent to which convergence between the international and domestic bond markets is taking place. This is

Figure
Bond markets of the developed economies, at end-1990



* Includes international institutions.

Source: BIS (1991).

examined from two perspectives. In the second section withholding tax, bearer form and the way in which issuing and trading activity are organised in the different bond markets are examined. In the third section existing regulatory constraints are reviewed and a discussion of portfolio and liability management is included. Some comments concerning the prospects for the international bond market are included in the conclusion of the paper.

I. The international bond market in context

(a) A brief history of international bonds

The issuance of international bonds has provided a route for cross-border capital flows for more than a century and a half. From the 1820s onwards, foreign issuers of bonds – most commonly governments and railway companies – were often in evidence in the London financial markets.⁴ Throughout the second half of the nineteenth century and until the outbreak of the First World War, London and Paris were the principal financial centres in which large foreign bond markets existed.⁵ During the 1920s, however, in view of the problems associated with managing a large national debt and securing the return of sterling to the gold standard, the UK authorities sought to restrict the issuance of foreign sterling bonds in London. At the beginning of the Second World War, exchange controls were introduced in the United Kingdom and no sterling foreign bonds were launched until their abolition some forty years later. The inter-war period had, in any case, witnessed the emergence of New York as the most important foreign bond market and this position was consolidated by the US financial markets in the first decade and a half after 1945. According to one estimate,⁶ some \$14 billion of capital was raised in the dollar foreign bond (or “Yankee”) market in the years 1946–63.

During the 1980s foreign bond markets for the Japanese yen and Swiss franc expanded rapidly. Indeed, by the end of the decade the Swiss franc foreign bond market had overtaken the Yankee bond market in size. In addition to these three large foreign bond markets

⁴ The history of foreign bond issues in the 1820s is related in Dawson (1990).

⁵ See Kindleberger (1984), Chapter 12, and the Annual Reports of the Council of the Corporation of Foreign Bondholders (1873 onwards). The competition between the different foreign bond markets in the 1920s is described in Einzig (1931). See also the voluminous commentary provided in US Congress (1932).

⁶ Hanna and Staley, “International bond manual: US Dollar”, Salomon Brothers.

there existed a number of much smaller ones, most of which were dominated by the issues of supranational borrowers.⁷

The Euro-bond market, which by 1990 accounted for more than three-quarters of all outstanding international bonds, has a much shorter history than the foreign bond markets. Although there is some disagreement as to which issue should be described as the first Euro-bond, it is accepted that the market's origins are to be found in the early 1960s.⁸ It was at the beginning primarily a market in dollar bonds and two factors facilitated its development. The first of these was the accumulation of offshore dollar balances during the late 1950s and early 1960s, associated with Regulation Q,⁹ the fear that dollar accounts held in the US might be frozen, sizable outward direct investment by US multinational companies and, in the 1960s, a series of US current-account deficits. The holders of these dollars became major investors in foreign dollar bonds, so that although trading and issuance took place in New York, both borrowers and investors were often European. This suggested the possibility that borrowers might bypass the US capital market, with its ratings and disclosure requirements, and offer bonds directly to European investors. The second factor was the progressive weakening of the Bretton Woods system during the 1960s and the associated measures taken by the US authorities as this problem developed. The principal symptom of this weakening from the point of view of the US authorities was the steady flow of gold from the Federal Reserve to other central banks arising from the deterioration of the US external position and the associated accumulation of dollar balances in the hands of other

⁷ The amounts outstanding in the various foreign bond markets at the end of 1989 are shown in Table B1.

⁸ A history of the market is given in Kerr (1984). Earlier descriptions of the Euro-bond market are to be found in Einzig (1969) and Donnerstag (1975). A recent description of the market is given in Gallant (1988).

⁹ Under Regulation Q, a maximum rate of interest – which during the 1940s and 1950s was set at or below 3% – was allowed on dollar deposits held with US-based banks. As a consequence, many foreign-based banks were able to attract dollar accounts offshore by offering higher rates of interest.

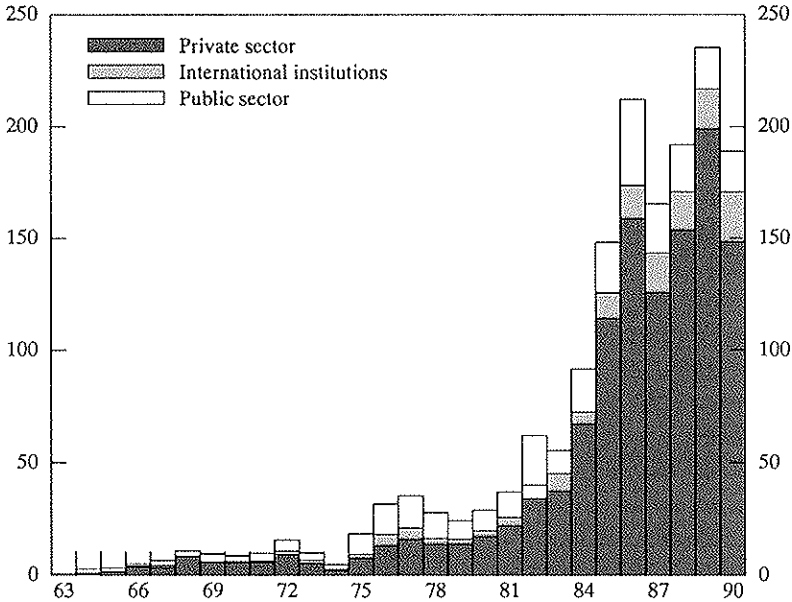
monetary authorities.¹⁰ In an attempt to limit this accumulation of dollars a series of measures were introduced which were intended to curtail capital outflows from the United States. Thus, in 1963 the Interest Equalization Tax was imposed, which was designed to raise by 1% the effective annual cost to foreigners of borrowing in the United States. This measure was sufficiently severe to terminate European borrowers' use of the Yankee bond market and issuance was diverted to the nascent Euro-bond market, which grew steadily (see Graph 2). In 1965 the Voluntary Restraint Program established voluntary limits on outward direct investment unless matching balance-of-payments earnings accrued. US banks were discouraged from making loans of over one year to international borrowers, including overseas subsidiaries of US corporations. The guidelines were replaced by mandatory restrictions on outward direct investment in 1968. As a result, many US multinational companies found the Euro-bond market to be the only available source of long-term finance for their overseas operations.

By the end of the 1960s a thriving Deutsche Mark sector of the Euro-bond market had also been created. This development, like the growth of the Euro-dollar bond market, owed much to the exchange rate tensions associated with that period. Throughout the 1960s the German authorities were confronted with persistent bouts of upward pressure on the Deutsche Mark, which they generally sought to resist.¹¹ As a consequence, they could afford to take a relatively relaxed view of the development of a Deutsche Mark foreign bond market. In particular, German investors were permitted to acquire foreign Deutsche Mark bonds, since such capital outflows eased the upward pressure on the currency. The acquisition of domestic German bonds by foreigners, by a similar line of reasoning, was to be discouraged. Accordingly, in 1964 a withholding tax was introduced

¹⁰ Under the Bretton Woods arrangements the Federal Reserve was obliged to provide other central banks with gold at the fixed price of \$35 per ounce.

¹¹ The Deutsche Mark was, however, revalued in 1961 (by 4%) and again in 1969 (by 8%).

Graph 2
Euro-bond gross issues, 1963-90
 "Real" volume of issues, in billions of 1990 US dollars*



* Volume of issues deflated by the US GNP deflator.

Sources: Prior to 1983, Euromoney Syndication Guide; BIS thereafter. The sectoral breakdown is not completely comparable.

on domestic German bonds and this measure created a strong incentive for non-German investors to acquire foreign rather than domestic Deutsche Mark-denominated bonds. Foreign Deutsche Mark bonds had been issued as early as 1958; as the participation of non-German investors in this market rose, non-German securities houses became increasingly active in the underwriting and distribution of these bonds. Primary and secondary market practices came to resemble those used in the dollar Euro-bond market; the

foreign Deutsche Mark bond market had, in effect, evolved into a Euro-bond market.¹²

After the collapse of the Bretton Woods system in 1972 and the switch to floating exchange rates, several of the factors which had stimulated the growth of the Euro-bond market in its early years ceased to be of importance. The Interest Equalization Tax, for example, was abolished in 1974. Despite this, the Euro-bond market continued to consolidate its position. While it is conceivable that the issuance of foreign dollar bonds could have returned to the US financial markets during this period, a number of factors militated against such a development. The most important of these were probably the establishment of a trading infrastructure for the Euro-bond market, the presence of a large and active market for Euro-dollars in London and strict SEC regulations which continued to be applied to new foreign bond issues offered in the Yankee bond market.

A substantial majority of the Euro-bonds issued during the 1970s were denominated in dollars. The largest non-dollar sectors were those of the Deutsche Mark and the Dutch guilder. With the advent of floating exchange rates, the importance of currency considerations in asset and liability management was underlined and during the second half of the decade the yen, sterling, French franc and Canadian dollar sectors of the Euro-bond market all developed.¹³ It was during the first half of the 1980s, however, that the rate of expansion of the market was at its most rapid. Between 1981 and 1986 issuance of Euro-bonds rose eightfold, on account of widespread financial liberalisation – notably in Japan and the United Kingdom – falling long-term interest rates,¹⁴ and a burgeoning swap market.

¹² Strictly speaking, it is still possible to draw a distinction between foreign and Euro-Deutsche Mark bonds. Very few foreign Deutsche Mark bonds are now issued, however, and the distinction is of little interest.

¹³ See Kerr (1984), pp. 115–144.

¹⁴ The interest rate on long-term US government bonds fell from 14% in 1981 to 7% in 1986.

Since 1986, however, issuance volumes in the Euro-bond market have fluctuated around \$50 billion per quarter, without displaying any strong upward trend. It is evident that the market's period of very rapid growth has come to an end.

The primary and secondary markets for Euro-bonds now constitute a sizable industry. In 1989 Euro-bonds worth more than \$220 billion were launched and trading volumes in the secondary markets exceeded \$2 trillion. It is not unreasonable to suppose that the annual income accruing to securities houses on account of their participation in these markets amounts to several billion dollars, with a figure of \$2½ billion perhaps quite close to the mark.¹⁵ Given the broad nationality composition of securities houses involved in the market, this income must be widely distributed among the developed economies, although most of it is earned by branches based in London, where the centre of the Euro-bond market is located.¹⁶

(b) The characteristics of international bonds

Table 1 sets out the main differences between domestic, foreign and Euro-bonds. As a rule of thumb, a bond can be said to belong to the Euro-sector if it was issued through an international (in respect of ownership) syndicate of securities houses.¹⁷ Non-Euro issues belong

¹⁵ This conjecture is derived from two estimates: (i) securities houses receive on average 0.5% of the funds raised on the primary markets, (ii) the typical differential between the transaction price and the mean of the bid and ask prices in the secondary markets is 0.05%. It is not appropriate to multiply the figure of 0.05% estimated in (ii) by total turnover in the secondary markets, since some of this turnover is attributable to transactions between different securities houses. The tentative figure of \$2½ billion does not include other income – such as fees for arranging swaps – which accrues to securities houses largely on account of their participation in the Euro-bond market.

¹⁶ According to one estimate (Euromoney, May 1987, p. 46) about three-quarters of primary and secondary market activity in the international bond markets takes place in London.

¹⁷ The securities houses might all be based in London, for example, but if some had Japanese parents, others US parents, others Swiss parents, etc. the syndicate could be said to be international.

Table 1
Bond markets: Summary of main differences

	Domestic	International	
		Foreign ¹	Euro
Issuer	Public or private sector agent of the country in which the market is located	Foreign government or corporation or international institution US: SEC-registered	Any borrower with good credit-standing Explicit ratings rare
Currency	Local currency	Local currency	Any widely used international currency
Amount raised in single issue	US and Japanese Governments: US\$ 5,000–25,000 million. Other governments: typically US\$ 500–5,000 million. Other borrowers: typically US\$ 50–500 million	Typically US\$ 50–500 million	Typically US\$ 50–500 million
Type	Usually registered, except in some European countries (e.g. Germany, Switzerland and the Netherlands) ²	Bearer except in Bulldog and Yankee markets	Bearer
Tax	Withholding tax is applied in several countries (Japan, United Kingdom, Italy, Switzerland) although foreign holders can usually claim some or all of the tax back ²	No withholding tax (with the exception of the sterling foreign bond market)	No withholding tax
Interest payments	Annual in some markets in continental Europe; semi-annual elsewhere ²	As in corresponding domestic market	Annual for fixed rate bonds. Semi-annual or quarterly for FRNs
Listing	Domestic stock exchange	Domestic stock exchange	Usually London or Luxembourg. For the Deutsche Mark, a domestic stock exchange
Security/covenants	Private sector issues are often secured	Unsecured	Usually unsecured, but often with a negative pledge
Issuing houses	Largely domestic banks and stockbrokers	Largely domestic banks and stockbrokers	International syndicate
Investors	Primarily domestic banks and other financial institutions	Domestic and overseas	Wide international profile. Private individuals play a major role
Structure	Government issues: most often bullets with a 5–10 year maturity at issue. Corporate issues: often convertible into equity	Usually bullets	Bullets common, but a wide variety of unusual structures have been employed. FRNs account for 13% of market
Issuing procedures	Public sector: usually sold through auction or syndicate. Private sector: placed by a syndicate or directly by borrower	Placed by a domestic syndicate	Placed by an international syndicate over a period
Secondary trading	Often through the domestic stock exchange, although OTC trading is prevalent in some markets (e.g. Deutsche Mark and Japanese yen). Stamp duty and fixed commissions charged in some markets	Primarily OTC trading. Stamp duty charged on transactions by residents in Japanese yen and Swiss franc markets	OTC trading organised by issuing banks with settlement by means of book-entry transfer system using one of the standard Euro-market clearing systems

¹ Several currency sectors of the foreign bond market have special names – \$ (Yankee), Yen (Samurai), £ (Bulldog), Dutch guilder (Rembrandt) and Spanish peseta (Matador). A distinction in the US financial markets is usually drawn between foreign bonds issued by residents of Canada – termed “Canadians” – and those issued by other foreign agents – termed “Yankee bonds”. ² For further details, see Tables 3 and 4.

to the domestic sector if the issuer's country of residence corresponds to the bond's currency of denomination, and to the foreign sector otherwise.¹⁸

In practice a whole group of characteristics distinguish domestic from international, and Euro from foreign bonds, although the importance of each of these characteristics varies across currency sectors. In the dollar bond markets, the critical factor dividing domestic and foreign bonds on the one hand from Euro-bonds on the other is the need for the former to be registered with the Securities and Exchange Commission (SEC). In the capital markets of several countries – Italy, Spain, the United Kingdom, Japan, Belgium and Switzerland – domestic bonds are subject to withholding tax, whereas international bonds denominated in the domestic currency typically are not. Most international bonds are traded through one of the two clearing systems Euroclear and CEDEL, whereas the majority of domestic bonds are not. Private sector Deutsche Mark bonds issued in the domestic market are usually secured by either mortgages or public sector loans, whereas in the international sector the lender's security is limited to certain legal covenants. Although it is possible to draw a distinction between non-domestic DM bonds placed by purely German syndicates and those placed by international syndicates, the distinction is of little interest since it is not reinforced by any regulatory or tax differences. All non-domestic DM bonds are listed on the German stock exchanges simply as international bonds.

The problem of deciding whether particular bonds are to be classified as international or domestic is faced at a practical level by both statisticians and the tax authorities. The Bank of England, in collecting data on new issues of international bonds, has stayed close to the criteria employed by the publication *International Financing*

¹⁸ Ecu-denominated bonds issued by the French, Italian and Spanish Governments, issued through domestic financial institutions, represent an important exception to these general rules. These bonds are classified as domestic bonds; see, however, the discussion in section III. (c) of this paper.

Review (IFR).¹⁹ Several notable borderline cases deserve to be mentioned. The first of these is the substantial stock of bonds created in early 1990 as a result of a debt conversion agreement between the Mexican Government and the commercial banks. These bonds have not been treated as international bonds in official statistics for a variety of reasons, such as the fact that they have not been recognised by the Association of International Bond Dealers. Other borderline cases include the Deutsche Mark floating rate notes (FRNs) issued by the Staatsbank of the former German Democratic Republic and the ecu-denominated bonds issued by the French Government. In both of these instances, the IFR has treated the bonds as international, although the German and French authorities regard them as domestic.

In order that a bond be recognised as Euro by the tax authorities it has sometimes proved necessary for borrowers to establish overseas financial subsidiaries and to issue bonds through these subsidiaries. The use of such subsidiaries, usually incorporated in the Netherlands Antilles,²⁰ was standard practice for US borrowers in the Euro-bond market prior to 1984. German borrowers, seeking to take advantage of favourably low interest rates on Euro-Deutsche Mark bonds in 1988 and 1989, also issued bonds via offshore vehicles, as such issues were not subject to withholding tax. In recent years, however, the use of such subsidiaries has not been necessary for UK borrowers wishing to ensure that holders of their securities receive interest payments gross. Although a withholding tax is levied in the United Kingdom, the UK tax authorities have been prepared to make an exception for Euro-bonds held with either CEDEL or Euroclear.

¹⁹ As far as Euro-bond issues are concerned, these criteria have been published (see *International Financing Review*, June 23 1990, p. 49 – reproduced in appendix E).

²⁰ The Netherlands Antilles is made up of six islands in the Caribbean Basin. The total land area is approximately 400 square miles and the population about a quarter of a million. For a more detailed account of the role played by financial subsidiaries incorporated in the Netherlands Antilles, see Papke (1989) pp. 16–20.

(c) Why are international bonds issued?

Two fundamental factors underlie the existence of the international bond market: the flow of capital across national boundaries, and the desire of agents to vary the terms, such as the currency of denomination, on which they borrow and invest. Although these two factors exert an influence on domestic bond markets – most of which now have significant foreign participation – they also encourage borrowers to utilise bond markets outside their country of residence. There are several reasons for this:

(i) Partly on account of restrictions placed on financial contracts in domestic markets and partly on account of the need to target foreign currency bonds at international investors, it is rare for bonds issued and traded in a domestic market to be denominated in a currency other than that of the country concerned.

(ii) Some borrowers, in particular the governments of most non-OECD countries, do not have access to well developed domestic bond markets. This category of borrower has traditionally played an important role in international bond markets, but with the onset of the debt crisis in 1982 only a small number of them were able to continue to raise funds from this source and by the end of 1989 their share of total outstanding international bonds had contracted to less than 3%.

(iii) The authorities have often placed restrictions on domestic markets²¹ which are most easily avoided by launching an issue in a different market. An example of this type is provided by the SEC registration requirements for new issues in the domestic US markets, which for many years provided a strong incentive for US borrowers to issue bonds on the Euro-markets. Another example is the prohibition on bullet bonds²² in the domestic Dutch guilder market

²¹ The levying of stamp duties on bond market transactions belongs in this category. For details of these duties in various domestic markets, see Table C.

²² A bullet bond is a bond with no amortisation features: it has a single redemption date.

prior to 1986, which had the effect of diverting issuance to the international sector.

(iv) Withholding tax is levied on bonds issued in some domestic markets. In some cases – the most important instance being sterling bonds – placing a bond in the international market is the easiest way to avoid the requirement to pay withholding tax. Withholding tax was also an important factor encouraging issuance by German borrowers in the international bond market during the period 1988–89, when the stated aim of the German Government was to introduce a 10% withholding tax on domestic bonds.

Although the use of international bonds has been encouraged for all of these reasons, the pattern of issuance activity is strongly affected by regulatory constraints and central banks have often placed restrictions on the issuance of international bonds denominated in the currency for which they are responsible. This fact, which at first sight is somewhat curious, raises two questions relating to the role of the authorities in the bond markets. How can a central bank exert such decisive influence over markets outside its jurisdiction? Why have the authorities typically adopted a cautious approach towards the use of their currencies in the (seemingly) passive role as a bond's unit of account? In order to answer the first of these questions it is illuminating to take as an example a financial institution considering whether to be involved in the issue of a Swiss franc bond in the Euro-markets. Until now, such issues have been successfully prohibited by the Swiss authorities,²³ with the result that all non-Swiss borrowers wishing to issue Swiss franc bonds have been forced to use the Swiss franc foreign bond market. There is, nevertheless, a significant disadvantage to using this market, in the form of a 0.35% stamp duty imposed on all primary and secondary market transactions, and by launching the issue in another market this disadvantage could be avoided. Why would the financial

²³ There has been one exception – the issue of a bond denominated in Swiss francs by the City of Copenhagen in 1963. No Swiss banks participated in the issue.

institution in this hypothetical example be deterred from doing this? Part of the answer lies in the fact that if the financial institution is interested in launching Swiss franc bonds, then it is probably interested in other types of business which involve operating in the domestic Swiss financial markets – it will therefore be anxious to preserve a good relationship with the Swiss authorities. The other part of the answer is that any successful Swiss franc bond issue is bound to require the participation of banks active in the domestic Swiss financial markets – and these banks are also not indifferent to the attitude of the Swiss authorities.²⁴

The second question posed above, concerning the restrictions placed by central banks on the issuance of bonds denominated in their own currencies, can be answered by considering the balance of benefits and costs arising from liberalisation. The principal benefit which accrues from a liberal approach – such as the approach adopted by the US authorities for many years in respect of the Euro-dollar bond market – is the flow of issuance business through domestic financial institutions. Set against this are several distinct costs. Increased competition from other bond issuers raises the interest rate required by holders of government debt and this may be unacceptable to a government with a heavy debt financing burden; this is probably the main reason why the Italian (until recently) and Belgian Governments limited the issuance of Euro-bonds denominated in their own currencies. Another cost is the loss of influence over exchange rate determination. The seriousness of this loss depends on the overall exchange rate regime, and in a regime without exchange controls the loss is probably rather small. Thus, the restrictions currently placed on international peseta bond issues, which appear to be primarily motivated by exchange rate

²⁴ Financial institutions operating in the Euro-markets are sometimes prepared to disregard the wishes of the relevant authorities. For example, in 1989 Merrill Lynch was lead manager for the issue of a bond, the redemption payment for which was linked to the peseta/Deutsche Mark exchange rate. This was done despite the opposition of the Spanish authorities to the deal (see *International Financing Review*, July 8, 1989).

Table 2
A comparison of international bonds and other forms of medium and long-term borrowing

	International bonds		Private placements	Medium-term notes (MTNs)	Syndicated credits
	Fixed rate	Floating rate			
Liquidity	Bid/ask spreads vary from about 0.1% of the value of the bond to 2%. For details see Table 6	Typically somewhat more liquid than fixed rate bonds	Much less liquid than international bonds	Less liquid than international bonds	Only limited secondary market exists. Banks with a reputation for not passing on credits can command higher fees
Maturity	Average maturity at issue about 8 years	Average maturity at issue about 15 years	Similar to international bonds	In the US domestic market, up to 30 years	7-8 years on average
Currency	Any widely used international currency	Usually the dollar or sterling, although a Deutsche Mark sector is developing	Large domestic markets exist for the dollar, Deutsche Mark, Dutch guilder and Swiss franc	The domestic US market is at present the most important, but non-dollar sectors are developing in the international financial markets	Two-thirds to three-quarters are denominated in dollars. Other common currencies are the ecu, Deutsche Mark and sterling
Fixed or floating	Fixed	Floating	Usually fixed	Usually fixed	Floating, occasionally fixed rate
Borrowers/issuers	A wide spread of highly rated borrowers!			In the early days of the market, corporate borrowers. Now sovereign borrowers and financial institutions are also active in the market. Borrowers are rated investment grade (BBB - or better)	Typically, borrowers are less well-known than those using the international bond market

Table 2 (continued)

	International bonds		Private placements	Medium-term notes (MTNs)	Syndicated credits
	Fixed rate	Floating rate			
Lenders/investors	A mixture of individuals and institutional investors	Financial institutions	Financial institutions	Financial institutions	Banks
Interest rate	For a AAA-rated borrower in the dollar sector, 0.25-0.9% above the yield on US Treasury debt	For a AAA-rated borrower in the dollar sector, about LIBOR	Somewhat higher than the interest rate paid on international bonds	For a AAA-rated corporate borrower: 0.45% above the yield on US Treasury debt. For a AAA-rated bank: 0.7% above ²	A highly rated borrower: LIBOR + 20-40 basis points. Less highly rated: LIBOR + 60-100 basis points M&A: LIBOR + 120 basis points
Form	Bearer	Bearer	Bearer	Registered	Not applicable
Listing	Yes	Yes	No	No	Not applicable
Size of market	Nominal amount outstanding at end-1989: \$ 1,085 billion	Nominal amount outstanding at end-1989: \$ 168 billion	Nominal amount outstanding at end-1989: \$: \$ 334 billion, Y: \$ 295 billion, DM: \$ 309 billion, Swiss franc: \$ 50 billion, Dutch guilder: \$ 92 billion ³	US domestic: \$ 70 billion	About \$ 150 billion of new syndicated credits were announced annually during the late 1980s
Amount of borrowing at one go	Usually \$ 50-500 million. Up to \$ 2-3 billion in ecu and dollar sectors		Usually less than \$ 100 million. Some placements by the German Government have been much larger	Often small amounts (less than \$ 10 million)	On average, about \$ 200 million, but can be several \$ billion

¹ For details see Tables 12 and B2. ² Figures for US domestic market in August 1989, taken from Stigum (1990). ³ Source: Benavides (1990).

considerations, will lose most of their usefulness when the Spanish Government liberalises capital controls as part of the implementation of the 1992 programme.

In Table 2 usage of the international bond market is viewed from a different angle, by sketching the features of various alternative financial instruments. A borrower seeking long-term finance can choose from a number of possibilities, including bonds, private placements, medium-term notes and syndicated credits. The choice between bonds and syndicated credits is principally influenced by the borrower's credit-standing, the volume of funds required and the degree of flexibility required by the borrower. Generally speaking, a borrower with a high credit rating, well-known in the financial markets and requiring a limited quantity of funds – say, under \$500 million – will choose to make an issue in the bond markets. Syndicated credits tend to be used by borrowers with less familiar names or by those requiring exceptionally large amounts, for example in the context of a takeover. Another important characteristic of syndicated credits is the fact that they can take the form of a facility, which can be utilised as and when required.

Medium-term notes and private placements are at present less widely used than bonds and syndicated credits in the international financial markets. The markets for both are, however, judged by some observers to have the potential to grow rapidly, in the process drawing business away from the international bond market.

II.

Convergence and market organisation

(a) Technical considerations

One way of looking at the question of convergence of the international and domestic bond markets is to examine the extent to which the securities traded in these different markets possess identical

characteristics. From a purely technical point of view there are some noticeable variations in conventions and trading practices used in the different bond markets (see Table 3):

(i) The interval between the trade date²⁵ (the date on which a transaction is effected) and the settlement date (the date on which payment is effected and securities are delivered) is typically one week in the Euro-bond market. A variety of rules are applied in the domestic markets.

(ii) Abstracting from fluctuations attributable to general factors – such as changes in interest rate expectations, risk perception and so on – the price of a bond follows a sawtooth path, falling abruptly at the point when the holder receives a dividend payment and then rising steadily during the interval up to the next dividend payment date. The prices quoted by participants in the bond markets are usually “clean”,²⁶ i.e. an attempt is made to eliminate this sawtooth element. Thus, the transaction price is made up of the clean price plus an item termed “accrued interest”, the size of this latter item being – more or less – directly proportional to the time which has elapsed since the last dividend date. The interest accrued between two dates in the same coupon period is calculated according to the formula:

$$AI = (d \times G) / Ay \quad (1)$$

where:

AI = accrued interest

d = number of days between the two dates

Ay = assumed number of days in a year

G = coupon rate

²⁵ Credit Suisse First Boston (1987b) provides an extensive guide to the terminology used in the bond markets. A more detailed account of the technical issues discussed here is to be found in Fage (1986).

²⁶ Fage (1986) notes three cases in which “dirty” prices are employed, (i) the market for French domestic indexed bonds, (ii) the market for Spanish domestic bonds, and (iii) UK and Irish bonds settled for account.

Table 3
Trading conventions and other technical features of the Euro and domestic government bond markets, at end-1990

	Australian	Austrian	Belgian	Canadian	Danish	Dutch	French	German
Settlement date (S)	Usually	S = next Monday but one after T	S = T + 2 bd	S = T + 3 bd if maturity > 5 years, T + 3 bd otherwise	S = T + 3 bd	Usually	Usually	Usually
Trade date (T)	S = T + 1 bd if maturity ≤ 5 years, S = T + 7 d otherwise					S = T	S = T + 2 bd	S = T + 2 bd ¹
Business days (bd)								
Days (d)								
Accrued interest calculation	ACT/ACT	30 E/360	30 E/360	ACT/365	30/360	30 E/360	ACT/ACT	30 E/360
Ex-dividend date (cd = coupon date)	cd-14	Complex Rule ²	No ex-dividend trading	12th or last day of month; about two weeks prior to cd	cd-30	cd-14	No ex-dividend trading	Complex Rule ²
Type	Registered	Bearer	All bonds available in bearer form	Bearer and registered	Bearer	Usually bearer	Bearer and registered	Usually bearer
Coupon	Semi-annual	Annual	Annual	Semi-annual	Various. Most government bonds: annual	Annual	Annual	Annual
Structures: Bullet FRNs	///	/// 3	///	///	/// /	///	///	///
Index-linked Sinking funds	/	X //		4 /		//		X
Callable bonds		//	//			/		
Extendible bonds								
Other features								

Table 3 (continued)

	Italian	Japanese	Spanish	Swedish	Swiss	UK	US	Euro
Settlement date (S) Trade date (T) Business days (bd) Days (d)	S = T + 3 bd	S = 10th, 20th or last day of month	Various, can be as long as one month	S = T + 4 bd	S = T + 2 bd ¹	S = T + 1 bd	Usually S = T + 1 bd	Usually S = T + 7 d
Accrued interest calculation	30/360	ACT/365	No accrued interest	30 E/360	30/360	ACT/365	ACT/ACT	30 E/360
Ex-dividend date (cd = coupon date)		No ex- dividend trading		No ex- dividend trading	No ex- dividend trading	Complex Rule ²	No ex- dividend trading	Generally no ex- dividend trading (DM sector is exception)
Type	Usually registered	Bearer and registered	Usually registered	Registered	Bearer	Usually registered	Registered	Usually bearer
Coupon	Usually semi- annual	Semi- annual	Usually semi- annual	Usually annual	Annual	Semi- annual	Semi- annual	Annual
Structures: Bullets FRNs	// //	///	///	/// /s	//	///	///	// //
Index-linked Sinking funds				X		//		/
Callable bonds Extendible bonds		6			///	/	///	/
Other features				Lottery bonds: //			Strippable bonds: //	Bonds with warrants: / Bonds con- vertible into equity: /

ACT = actual number of days between the two dates; 30E = assume 30-day months; 30E = procedure adjusted for 31-day months; 360 = assume year of 360 days; 365 = assume year of 365 days; / = 0-10% of market; // = 10-50% of market; /// = > 50% of market; X = prohibited.
¹ For off-stock exchange trades, S = T + 7 d. ² See Page (1986) for details. ³ The Austrian Government has issued FRNs denominated in Austrian schillings in the international bond market. ⁴ The Canadian Government has announced its intention to issue index-linked bonds in autumn 1991. ⁵ Until recently, a typical Swedish bond contained a clause for interest rate adjustments. ⁶ In principle all government bonds issued by the Japanese Government are callable. In practice bonds have not been called even when it was advantageous to do so.

Several different practices are employed as far as the terms d and A_y in equation (1) are concerned. For d there are three different conventions:

1. (denoted 'ACT') the actual number of days between the two dates.
2. (denoted '30') assume 30-day months.
3. (denoted '30E') as in (ii) but with a slightly different procedure as far as the treatment of months with 31 days is concerned.

There are also three different conventions for A_y :

1. (denoted '365') assume a year of 365 days.
2. (denoted 'ACT') the number of days in the current coupon period multiplied by the number of coupon payments per annum.
3. (denoted '360') assume a year of 360 days.

The abbreviations in brackets are used as a shorthand to summarise the conventions employed in the different bond markets. Thus, in the Euro-bond market accrued interest is said to be calculated on a 30E/360 basis.

(iii) In certain markets, bonds are traded ex-dividend for a certain period immediately prior to the dividend date. In such cases, the seller rather than the purchaser receives the dividend payment when it is made and accrued interest is negative. The rules for determining the ex-dividend period are often complex.

(iv) Bearer form is the rule in some markets, but rare in others. For most market participants this is of little concern as holdings of bearer bonds placed in a depository are traded in much the same way as registered bonds.

(v) The popularity of certain structures varies considerably across different domestic markets. A substantial proportion of the Italian Government's obligations are medium-term floating rate notes; this structure is rare in most other domestic markets. Index-linked bonds

have been issued by two governments, those of the United Kingdom and Australia; in some other markets, such as the German one, this kind of structure is forbidden. Callable bonds and bonds with sinking funds are common in some markets but not in others.

(vi) The calculation of yields available on different bonds is an important means of comparison. There is, however, no single universally employed method of calculating bond yields. For example, differences arise in the calculation of yields on bonds which are in their last coupon period, in whether account is taken of the occurrence of nominal coupon dates on non-business days, the treatment of coupon periods of unequal length and the treatment of bonds with sinking funds. For many reasons of this kind, direct comparison of quoted yields for securities in different markets can be potentially misleading.

It is not clear whether the substitutability of bonds traded in the domestic and international markets is significantly reduced for these reasons. Accrued interest and yield calculations affect the form in which information about a security is presented but have no impact on the underlying characteristics of the security.²⁷ The length of the interval between the trade and settlement date and the ex-dividend trading rule both have implications for the cash flow plans of bond transactors. The conventions on these matters are by no means uniform in each domestic bond market.²⁸ From the technical point of view therefore, the differences between the international and domestic bond markets are perhaps no more important than the differences which exist within particular domestic markets.

²⁷ See, however, Stigum (1990) pp. 1111–12 for an account of how differences in accrued interest calculations inhibited the development of a market for medium-term CDs in the domestic US market.

²⁸ For example, the interval between trading and settlement date is usually two business days for a Bund traded on a German stock exchange, but in the domestic over-the-counter market it may be one week. As far as UK government gilts are concerned see Corrigan, MacKinnon and Hartnell (1989) pp. 119–120.

(b) Withholding tax and the bearer status of Euro-bonds

Most international bonds and in particular nearly all Euro-bonds are in bearer form. The bonds themselves consist of certificates – usually with a nominal value of around \$1,000, although their denomination is sometimes higher – which at the time of issue have a set of detachable coupon slips, one for each coupon date. During the course of the bond's life each coupon slip is presented to the issuer on the appropriate coupon date and the agent presenting the slip receives payment.²⁹ No record is kept by the issuer or paying agent of the identity of the final owners of the bonds. Instead, it is presumed in law that each certificate is owned by its holder. A transfer of possession of a certificate constitutes a change of ownership.³⁰

The practical difficulties associated with trading bearer bonds among a geographically diverse range of market participants were evident at an early stage in the life of the Euro-bond market. By the late 1960s the problem of failed delivery appears to have become endemic.³¹ The solution to this problem was to be found in the substitution of book entries for the physical movement of bonds. The founding of two institutions, Euroclear (established in late 1968) and CEDEL (established in 1970), enabled such a substitution to take place. A substantial proportion of all outstanding international bonds are now held in the depositories of these two organisations. Active participants in the Euro-bond market will typically hold

²⁹ The payment of coupons is handled by a paying agent appointed by the issuer.

³⁰ By contrast, ownership of a registered bond is recorded by a registrar and can only be transferred with the endorsement of the registered holder. Whereas bearer bonds are almost always in the form of physical certificates, the same is not necessarily true of registered bonds. Under a book-entry system – such as those used for most bonds issued by the US and UK Governments – ownership of a registered bond is simply recorded in a set of computerised records. It is sometimes but not always possible to obtain a registered bond in bearer form. In the United States the issuance of bonds convertible into bearer form is at present not permitted.

³¹ Bowe (1988) pp.132–33 cites the instance of one trading house which had over \$50 million of failed deliveries by late 1968.

securities accounts with Euroclear and CEDEL and when executing trades amongst themselves will simply transfer title to the relevant securities. Besides facilitating settlement in this way, Euroclear and CEDEL also offer money transfer and banking services, and securities lending and borrowing facilities.

Aside from bearer form, the other hallmark of Euro-bonds is their exemption from withholding tax.³² In certain instances the tax authorities have allowed the interest paid on Euro-bonds issued by residents to be free of withholding tax, even though bonds issued in the domestic market enjoy no such exemption. This has been the case in the United Kingdom in recent years as far as Euro-bonds issued by UK borrowers held with CEDEL and Euroclear are concerned. In other instances withholding tax regimes have been circumvented by the use of offshore subsidiaries. Until 1984 this was the method used by US borrowers, who issued Euro-bonds via shell companies incorporated in the Netherlands Antilles. There were certain set-up costs associated with using such shell companies, which were, moreover, subject to taxation in their country of incorporation.

As Table 4 shows, exemption from withholding tax is not a characteristic unique to Euro-bonds; withholding tax is levied in only about one-half of the major domestic markets. There is, moreover, a discernible trend towards abolition: during the 1980s withholding tax regimes were dismantled in three large domestic bond markets, those of the United States, Germany and (for foreign investors) France.³³ This may be associated with the fact that the amount of revenue raised by withholding taxes appears to be rather small.

³² Most Euro-bonds carry a commitment by the issuer that if a withholding tax is subsequently applied to interest payments, either the bonds will be redeemed or the interest payments grossed up by the size of the tax. Even though most government bonds in domestic markets are not now subject to withholding tax, they are not from the point of view of an investor a perfect substitute for Euro-bonds in this respect because there is always a risk that a government's taxation policy will change.

³³ In the United Kingdom, a report compiled by the main practitioners in the non-gilt domestic bond market led to a submission to the tax authorities arguing for the abolition of withholding tax. See the International Stock Exchange (1990).

Table 4
Withholding tax arrangements on domestic bonds, end-1989
 In percentage points

	Residents	Non-residents	Rate for non-residents after application of double tax agreement ¹	History of withholding tax regime
Australia	0	10	10	
Austria	10 ²			Withholding tax introduced on 1st January 1989.
Belgium	25 ³	0	0	
Canada	0	0	0	No withholding tax on federal, provincial and municipal debt issued after April 1966. Since 1975, no withholding tax on corporate bonds with an original maturity of at least five years.
Denmark	0 ⁴	0	0	No withholding tax ever applied.
France	4 or 5	0	0	A 25% withholding tax for non-residents was abolished for government bonds issued after October 1984. No withholding tax is applied on any domestic bonds issued after January 1987.
Germany	0	0	0	Between 1964 and 1984 a withholding tax of 25% (temporarily raised to 28.25% in the 1970s) was levied on domestic bonds. In October 1987 a decision to impose a 10% withholding tax on domestic bonds as from the start of 1989 was announced. In April 1989 it was announced that the new tax would be abolished as from July 1989.
Italy	12.5 ⁶	12.5 ⁶	AT, JP, 10; ES, 12; CA, DE, DK, CH, BE, FR, GB, US, NL: 12.5	No withholding tax on government bonds issued prior to 1986. Other domestic bonds have always been subject to withholding tax. In the spring of 1991 the Italian Government announced that foreign investors would receive refunds of withholding tax payments. The first such refunds were paid in autumn 1991.

Table 4 (continued)

	Residents	Non-residents	Rate for non-residents after application of double tax agreement ¹	History of withholding tax regime
Japan	20		FR, NL, US, CH, GB, IT, AT, ES, DK, DE: 10; CA, BE: 15	
Netherlands	0 ⁴	0	0	No withholding tax ever applied.
Spain	25	25 ⁷	AT: 5; DK, FR, DE, JP, NL, CH: 10; IT, UK: 12; BE, CA: 15; US: 25	
Sweden	0 ⁸	0	0	
Switzerland	35	35	DK, DE, GB: 0; NL, AT, US: 5; BE, FR, JP, ES: 10; IT: 12.5; CA: 15	
United Kingdom	25 ⁶	25 ⁶	AT, DK, DE, CH, US, NL: 0; CA, FR, JP: 10; ES: 12; BE: 15; IT: 25	
United States	0	0	0	A 30% withholding tax on foreigners' interest income from US sources was abolished in July 1984.

¹ Country of residence codes are: AT: Austria; CA: Canada; DE: Germany; DK: Denmark; CH: Switzerland; BE: Belgium; IT: Italy; FR: France; ES: Spain; JP: Japan; GB: United Kingdom; NL: Netherlands; US: United States. ² Bonds issued prior to 1984 are exempt. ³ Reduced to 10% for new issues as from 1st March 1990. ⁴ Automatic reporting by banks to tax authorities. ⁵ Choice of paying withholding tax at different rates (depending on the type of bond) or at the marginal personal income tax rate. ⁶ Subject to exceptions. ⁷ Abolished on 1st January 1991. ⁸ Capital income tax of 30% introduced for domestic residents as from 1st January 1991.

Sources: EJB (1990), EBC (1989), Price Waterhouse "Corporate Taxes: A Worldwide Summary", and central banks.

As far as the tax authorities are concerned, the importance of having a withholding tax system depends upon the availability of information relating to the bond holdings of those liable to tax. If all bonds are registered, obtaining such information does not pose insurmountable difficulties. However, in the domestic markets of some European countries the majority of bonds are in bearer form. The authorities have adopted three different approaches to the tax collection problem in these countries. In Switzerland, and also in Austria since 1989, withholding taxes are employed. In the Netherlands a system of automatic reporting by banks to the tax authorities has been instituted. In Germany, at present, neither of these methods is used and there is as a consequence significant scope for tax evasion on income obtained from domestic bonds.³⁴

The combination of bearer form and absence of withholding tax renders Euro-bonds attractive to a spectrum of investors, including tax evaders, those who find the process of claiming tax back either very inconvenient or impractical, and those resident in countries which have not concluded the relevant double taxation agreements. These investors have traditionally formed a core part of the Euro-bond market in the sense that they have been prepared to accept yields below those prevailing in domestic bond markets.

The pattern of usage of the international bond market observed during the 1980s is partly explicable in the context of the withholding tax regimes which have been in place. The most active borrowers in the market have been residents of Japan and the United Kingdom. Both groups of borrowers must pay withholding tax on bonds issued in their domestic markets. The abolition of withholding tax in the domestic US market is part of the reason for the decline in the use made of the international market by US borrowers.

³⁴ Following a court ruling in mid-1991 which indicated that the German fiscal regime for interest income was inequitable, the German Government undertook to reform the existing system.

(c) The primary market

Traditionally, Euro-bonds and Swiss franc foreign bonds were issued through syndicates of banks using methods closely related to those employed in the domestic US financial markets.³⁵ Each syndicate was composed of three overlapping groups: a management group (including the lead manager), an underwriting group and a selling group. This division of the syndicate reflected the multi-stage process by which the bonds were sold. The borrower initially sold the bonds to the managing group, which in turn sold them either directly to both the underwriters and the selling group or to the underwriters, who in turn sold them to the selling group. The selling group then sold the bonds to the final investors.

The important role played by private investors, particularly those based in Switzerland and some other countries of continental Europe, and the bearer status of Euro-bonds have both influenced the functioning of the Euro-bond primary market. Banks engaged in the business of distributing the bonds to private investors typically demanded a substantial selling commission, sometimes as much as 1½ or 2% of the price of the bond. The total commissions paid by issuers to syndicates in the Euro-bond market have as a consequence been substantially larger than those paid, for example, in the domestic US market. As institutional participation in the Euro-bond market increased, however, the size of the selling commission ceased to represent a realistic price for the services rendered by a selling bank and in many cases the bulk of the selling commission was passed on to the final investor in the form of a discounted price.³⁶ Despite this,

³⁵ More detailed accounts of the traditional Euro-bond issuing procedure are to be found in Grabbe (1986), Mendelson (1983) and van Agtmael (1983). This section also draws on an unpublished paper written by S. Jeanneau of the Bank of England.

³⁶ For example, consider the member of a selling group who receives a bond priced at 98, on the understanding that it will resell the bond at 99.25, taking 1.25 as selling commission. Suppose that the bank can only find an investor who is prepared to purchase the bond at 98.5. In selling the bond to this investor, the bank will have passed on three-fifths of the selling commission in the form of a discount.

large selling commissions have continued to be a feature of the Euro-bond primary market.

The bearer status of Euro-bonds limits the extent to which price uniformity can be ensured in the primary market. Although lead managers usually considered it desirable that all members of the syndicate should charge final investors the same price, and have in any case sought to stabilise the price of the bond in the immediate post-issue period, they have been handicapped in their attempts to realise these objectives. The principal difficulty was that the lead manager had no reliable way of monitoring the transactions undertaken by other members of the syndicate. This difficulty was underlined by the development of a grey market for new Euro-bond issues, which allowed transactions to take place during the period when the final terms – such as price and coupon – had not been fixed.³⁷ A bank invited to participate in the selling group of a syndicate and which found itself unable to place the bonds with a final investor could alternatively choose to sell the bonds in the grey market. Such behaviour was almost impossible to prevent because it could not be detected. An even more disruptive practice, from the point of view of the lead manager of an issue, has been the short-selling of a new issue by market participants considering it to be overpriced. Lead managers have on occasion sought to deter such short-selling, using a tactic known as the “bear squeeze”.³⁸

The grey market itself has been a part of the Euro-bond market since 1978, when the securities firm Ross and Partners began quoting grey market prices on Reuters screens. Initially access to the screen quotes was limited to those members of the Association of International Bond Dealers (AIBD) registered as market-makers but

³⁷ Bonds in the grey market are traded on an “if and when issued” basis and are priced in terms of a discount (or premium) to the as-yet-unknown issue price. A price of “less 1”, for example, would mean a price of 98¾ if the bonds were issued at 99¼.

³⁸ A lead manager employing this tactic purchases the entire issue, including the short sale. When the short seller is required to close its position, it finds that the only available bonds must be purchased from the lead manager, at very unfavourable terms.

subsequently it was made more generally available. Although these developments were widely opposed by lead managers in the early days, the grey market has become a well-established and distinctive feature of the Euro-bond primary market (see Table 5) and has almost certainly contributed to its efficiency by facilitating the setting of a market-clearing price.

In the late 1970s and early 1980s it appears that the Euro-bond market offered significant savings for borrowers, at least as far as those resident in the United States were concerned. This advantage is suggested by several studies, such as that of Marr and Trimble (1988), in which it is estimated that over the period 1977–83 US borrowers paid interest costs on debt issued in the Euro-bond market 0.3% lower than on debt issued in the domestic market.³⁹ It is argued by Kim and Stulz (1988), however, that these studies, which focus on the yields obtainable on new dollar bond issues in the domestic and Euro-markets, do not provide persuasive evidence of cost savings; the cost savings associated with lower yields in the Euro-bond market might for example have been matched by higher underwriting costs. They therefore tried an alternative approach, in which they studied the response of a company's share price to the announcement of an offering in the Euro-bond market. They found that such offering announcements were in fact associated with an abnormal positive stock return,⁴⁰ confirming the main conclusion of previous work based on yield information.

During the 1980s, the process of syndication underwent important changes, with an increased use of bought deals. Bonds launched using this method are typically bid for by bond houses on a fixed price basis and on other terms which are not subject to alteration

³⁹ Marr and Trimble attempted to allow for such factors as the credit rating of the borrower. They estimated that for a low credit risk firm the interest cost advantage of using the Euro-bond market was some 1%.

⁴⁰ By contrast, the announcement that a company is making a new debt issue in the domestic bond market appears to have had a negative or zero effect on the company's share price.

Table 5
Issuance procedures in the domestic and Euro-bond markets

	Domestic government bond markets					Euro-bond market			
	US Treasury bond-style (or English) auction	Dutch auction/tender	Syndicate	Tap	Traditional Euro-bond offer for sale	Bought deal	Fixed price re-offer	Dutch auction	
Uniform price for all purchases?	No - price bid by purchaser, if accepted	Yes	Yes	Security sold on several different days, usually at different prices	No. Re-allowances common		In principle yes, but some illicit discounting sometimes occurs	Yes	
Can any investor directly purchase newly issued bonds?	Not necessarily	Not necessarily	No, syndicate members only		No, syndicate members only	No, syndicate members only	No, syndicate members only	No, IPMA ¹ members only	
Underwritten	No	Yes	Yes	No	Yes	Yes	Yes		
Markets using procedure/ extent to which procedure is used	US government bonds	French government OATs; gilts	JGBs; Bunds	Gilts; New Zealand government bonds; Dutch government bonds	Euro-bond market; Swiss franc foreign bond market	Euro-bond market; also used in the domestic US market	About one-fifth of deals in the dollar sector of the Euro-bond market in 1990	Has been used by the Danish government in the Euro-bond market?	
Grey market trading	No	No	No	No	Yes				
Extent to which borrower can respond to favourable market conditions	Little	Moderate	Moderate	Considerable	Moderate	Considerable, especially when combined with a swap transaction	Considerable	Moderate	

¹ IPMA = International Primary Markets Association. ² See Jakobsen, W. and Tybjerg (1990). Details in this column relate to the issue made by the Danish Government in the spring of 1990.

during the course of the period between the announcement and offering dates.⁴¹ The technique has clear advantages for the borrower, who knows what the cost of funds is and remains unaffected by market movements. The risk is transferred to the management group. Because it is quick to arrange, the bought deal allows a borrower to take advantage of a temporarily favourable constellation of interest rates.

The bought deal is now, for small deals, the norm rather than the exception in the Euro-bond primary market and syndicate size, which used to be very large, has contracted. Because the streamlined techniques avoid the cumbersome procedures of traditional syndication, new entrants to the market have found that they are easy to master and also reduce the need for established reciprocal relationships with dozens of existing bond houses. The bought deal syndicate therefore added a new competitive dimension to the Euro-bond market.

Expenses associated with the issuance process itself are an important determinant of the cost of funds and influence the extent to which a borrower regards bond issuance in different markets as substitutable forms of finance. There is a considerable body of evidence indicating that the lead management and underwriting of new issues in the Euro-bond market is a highly competitive business (this evidence is discussed in detail in Davis (1988)). There appear to be few barriers to entry, concentration levels are low and market shares have fluctuated widely. The speed with which an issue can be brought to the market and an associated swap transaction undertaken is also viewed as an important advantage for users.⁴²

⁴¹ On the announcement date a press release is published announcing the new issue, and invitation telexes are sent out inviting other banks to participate in the syndicate. On the offering day, the borrower and managing banks sign a subscription agreement setting out the final terms of the bond issue. At this point, the syndicate has in effect purchased the bonds from the borrower at an agreed price, though the borrower will not actually receive the funds until the closing day.

⁴² See Pratt and Simpson (1988).

In recent years, despite record issuance volumes, it has frequently been claimed that the market is afflicted with excess capacity and low profitability. Whatever the validity of these claims, it is likely that the competitiveness of the Euro-bond primary market makes an important contribution to the Euro-bond market's ability to attract issuance away from the domestic markets.

By 1989 it was felt by some of the leading Euro-bond houses that a reform of primary market procedures was overdue. Discussion papers were published by several key participants in the market and a new issuing technique, the fixed price re-offer, was introduced.⁴³ Under this form of syndication, the banks involved have a contractual obligation not to discount fees by selling bonds cheaply to investors. The technique has, on occasion, been supplemented by a system of control numbers, which has allowed the lead manager to detect any violations of the pricing agreement. It rapidly became apparent that the fixed price re-offer method was an important innovation in the Euro-bond primary market and during the first three quarters of 1990 more than one-fifth of new issues in the dollar sector were brought to the market in this way.

(d) The secondary market

The vast majority of secondary market transactions in Euro-bonds take place in over-the-counter (OTC) trading. Euro-bonds are normally listed on the London or Luxembourg stock exchange, but little trading passes through the exchanges on which they are listed. The listing is largely a cosmetic exercise designed to enhance the acceptability of Euro-bonds, in view of the fact that many institutional investors are not permitted to purchase unlisted securities. The dominance of OTC trading is not a characteristic

⁴³ See Credit Suisse First Boston (1989) for one of the contributions to the debate. Accounts of the introduction of the fixed price re-offer technique – which was imported from the domestic US financial markets – are to be found in *Euromoney*, September 1989, pp. 38–43, *Euromoney*, October 1989, pp. 52–66 and *The Economist*, 13th October 1990, pp. 109–110.

unique to the Euro-bond market; most government bonds issued in domestic markets are also traded in this way.

(i) Market-makers

The core of the Euro-bond secondary market is formed by those banks acting as reporting dealers and a small number of inter-dealer brokers (IDBs). IDBs, which were first introduced into the market in 1978, have become an important part of the secondary market, allowing reporting dealers to deal anonymously with one another. A reporting dealer desiring to sell a particular bond can communicate its offer to an IDB, which in turn registers the offer on its screen, access to which is available exclusively to other reporting dealers. In the event that a buyer is located and the security successfully sold, the IDB receives a commission.

Access to the IDBs' screens is regarded as one of the main privileges of being recognised as a reporting dealer by the Association of International Bond Dealers (AIBD), but the exclusiveness of access raises the question of whether the transparency of the market would not be furthered by allowing IDBs to deal with non-reporting dealers.⁴⁴

Section 900 of the AIBD's rulebook sets out the obligations of reporting dealers. A register is maintained by the committee of reporting dealers listing those securities houses which are prepared to maintain two-way prices up to agreed trading sizes, during market hours, for a selection of bonds in a market sector. The precise definition of a market sector is a task which the rulebook also delegates to the committee of reporting dealers.

Reporting dealers are obliged to submit to the committee at the end of each business day a list of the securities in which they deal,

⁴⁴ Rule 951 of the AIBD rulebook states that "inter-dealer brokers shall exclusively effect business between reporting dealers and shall give an undertaking to the council of reporting dealers not to effect business with or between other parties." Rule 952 states that the inter-dealer brokers are subject to audits to determine their adherence to Rule 951.

together with the prices at which they are prepared to buy and sell them. This information is processed by the AIBD and published in extensive price lists which form the main publicly available source of Euro-bond prices.⁴⁵ The committee and other affected reporting dealers are supposed to be informed if a reporting dealer adjusts the bid/ask spread or minimum agreed trading size with respect to a particular security.

(ii) Liquidity

Despite these arrangements, it is generally recognised that a large majority of Euro-bonds are not liquid. Secondary market activity is often very limited and sometimes even the securities house which acted as lead manager for a bond's launch is unwilling to make a two-way market in the bond.⁴⁶ This illiquidity is not, however, very surprising, as Table 6 demonstrates. The average amount outstanding of an international bond, at about \$100 million, is only a fraction of average issue size in the major government bond markets, and the average holding period is, moreover, some four to ten times as long. Most turnover in the international bond market is concentrated in a few large issues, the majority of which were made by sovereign or supranational borrowers.

In order to enhance liquidity in the Euro-bond market, both of the major Euro-bond clearing systems – Euroclear and CEDEL – have introduced bond lending facilities, enabling market participants to short sell bonds. Typically, the lender of a bond will be an institution which does not wish to manage its bond portfolio actively and is willing temporarily to forgo the right to sell the security. Borrowers, on the other hand, are those seeking to “finance” temporary shortages of particular securities and thereby reduce the risk of settlement failure. They are usually active traders, such as reporting dealers. The two clearing systems facilitate bond lending by

⁴⁵ A summary price list for the most liquid international bonds is published daily in the Financial Times.

⁴⁶ See Euromoney, May 1988, p. 50.

Table 6
Liquidity indicators in selected financial markets

Market	Typical bid/ask spread (expressed as a percentage of the amount traded) (1)	Typical amount for which dealer's quote is good (US\$ million) (2)	Average size of individual issue (US\$ million) (3)	Size of some large issues (US\$ million) (4)	Annual turnover (US\$ billion) (5)	Average holding period (months) (6)
Government bonds US Treasury bond & Treasury note	0.03-0.12%	200-250	Notes: 9,000 Bonds: 5,000	Treasury (7 $\frac{3}{8}$, 96) 20,000 Treasury (8 $\frac{7}{8}$, 19) 20,000	20,000	1
Bund	0.05-0.20%	20-25	2,000	Deutschland Rep (9.00) 10,000 JGB(4.8, 99) 20,000	3-4,000 ¹	1
JGB	0.08-0.25%	30-40	9,000	Treasury (8 $\frac{3}{4}$, 97) 5,800	20,000	0.6
Gilt	0.06-0.35%	20-25	1,000	France OAT (8 $\frac{1}{8}$, 99) 8,000	1,000	1.5
French govern- ment (OAT) . . .	0.10-0.20%	10-15	4,300		n.a.	n.a.
International bonds	Liquid: 0.10-0.5% Illiquid: 1.0% +	0.2-1.0	US\$ = 130 DM = 110 £ = 130 Yen = 100 Ecu = 100 Other = 60	UK(FRN, 96) 4,000 World Bank (8 $\frac{3}{8}$, 99) 1,500 Deutsche Bank (5 $\frac{5}{8}$, 96) 450 Italy (10 $\frac{1}{2}$, 14) 650 Italy (5 $\frac{3}{4}$, 92) 1,000 UK (9 $\frac{1}{8}$, 01) 3,500	2,700	6 (FRNs: 4 Other: 7)
Other financial markets Forex (DM/\$) US Treasury bill ISE - Equity (Alpha stock)	0.04% 0.005-0.01% 0.8-1.0%	100 100 0.1-0.5	Not applicable 15,000 2,000	Not applicable 30,000 30,000	20,000 ² 7,500 365	Not applicable 0.7 12

¹ This is an estimate, based on the assumption that around 70% of the trading of bonds takes place on the OTC market (for which no reliable figures are available). ² This figure is an estimate (for the DM/\$ market only) based on a survey of one month's forex trading as reported in Bank of England (1989).

Sources: Columns (1) and (2): JP Morgan (1990). Bond manuals (see bibliography), Bingham (1990), market sources; Neuberger and Schwarz (1990), Bishop (1990a). Columns (3) - (6): BIS international bond database, Euroclear, Economic Statistics Monthly (Bank of Japan), Monthly Statement of the Public Debt of the United States (US Treasury Department), Federal Reserve Bulletin, Financial Statistics (CSO), Financial Times, Monthly Statistics Report (Tokyo Stock Exchange).

circulating lists of borrowing needs to interested parties. All transactions take place on an anonymous basis; the borrower and lender do not know the identity of one another. There is minimal risk involved from the lender's point of view, because the clearing systems guarantee the return of securities lent (or the cash equivalent) if a borrower fails to return them.

In 1989 an average of \$2.4 billion of securities loans were outstanding at the end of each business day in the Euroclear system;⁴⁷ the corresponding figure for CEDEL was \$0.7 billion. Compared to the outstanding stock of Euro-bonds, these figures are rather small, and indicate that short-selling plays a relatively minor role in the market.⁴⁸ There are several reasons for this. Firstly, the clearing systems place strict limits on the amount of any individual security that can be borrowed. In the case of a straight debt issue, no more than 10% of the total outstanding can be borrowed; the corresponding figure for a convertible bond is 5%. A second factor inhibiting short-selling is the high charge – 3½% – faced by borrowers of securities.

(iii) Trade matching and reporting requirements

Trade matching⁴⁹ and reporting requirements in the Euro-bond market are met by two systems, Trax and ACE. Although these two

⁴⁷ Not all of these securities will have been Euro-bonds, since a substantial number of other financial assets are traded in the clearing systems.

⁴⁸ Figures from the US Treasury bond market help illustrate this point. Thus, in the third quarter of 1989 net short-selling by market-makers in the US market – a market about twice as big as the Euro-bond market – amounted to \$25.8 billion (see Stigum (1990)). The figures mentioned in the text, for Euroclear and CEDEL, are gross.

⁴⁹ Trade matching is the process by which the information provided by the two counterparties to a transaction is reconciled. Most Euro-bond transactions are initially agreed between two traders over the telephone. Each trader will then pass on details – such as price, quantity, counterparty, settlement date – to a back office, which has responsibility for checking the information against that provided by the counterparty's back office. Until the late 1980s, when the Trax and ACE systems were introduced, this process of trade matching was conducted through the exchange of telexes.

systems happen to serve a number of identical purposes⁵⁰ they were created with somewhat different objectives and user bases in mind. Trax was developed by the AIBD with a view to providing traders with an up-to-date transactions report – a transaction is supposed to be reported to the system within thirty minutes of agreement – allowing matching inconsistencies to be resolved as quickly as possible. Under AIBD rules, all reporting dealers, inter-dealer brokers and all firms which carry on investment business in the United Kingdom must use Trax. The ACE system was set up by the AIBD, Euroclear and CEDEL to satisfy the pre-settlement matching requirements of the two clearing systems and is offered to all Euroclear and CEDEL participants.

(iv) Yields and prices in the domestic and international bond markets

Some indicators of the extent to which the domestic and international bond markets are integrated are provided by Tables 7–10 and Graph 3. The spreads between yields on international (highly rated, liquid) and domestic (government) bonds are shown in Graph 3 and some summary statistics are reported in Tables 7 (a) and (b). The size and stability of the spread varies across currency sectors. The spread is clearly most stable in the case of the dollar and Swiss franc sectors, and in both cases averaged about ½%. Withholding tax developments explain the main movements in the spread for the Deutsche Mark bond sector, with the spread being negative during

⁵⁰ The introduction of Trax has been a controversial development in the Euro-bond market, with a number of securities houses claiming that they do not really need it and the clearing organisations – Euroclear and CEDEL – concerned that it might encroach on their own business. Under the UK Financial Services Act, however, the Securities Investment Board insisted that if the AIBD were to be recognised as an investment exchange, a system would have to be instituted which would provide an audit trail for all trades made by London-based participants. The various issues involved are described in Euromoney, May 1988, pp. 45–58, The Banker, July 1989, pp. 18–26 and The Financial Times, 12th and 13th January 1990.

Table 7 (a)

Bond market yieldsDifferences between five-year government bonds and five-year Euro-bonds,
monthly observations, December 1985–December 1990

Currency of denomination	Min.	Max.	Range	Mean	Variance	Standard deviation	No. of obs.
US dollar	0.23	1.14	0.91	0.57	0.03	0.17	61
Canadian dollar	-0.19	1.11	1.30	0.45	0.08	0.27	61
Deutsche Mark	-1.04	0.40	1.44	-0.06	0.10	0.32	61
Japanese yen	-0.42	1.43	1.85	0.31	0.16	0.40	48
French franc	-0.08	1.33	1.41	0.39	0.10	0.30	61
Pound sterling	-0.66	1.35	2.01	0.44	0.15	0.39	61

Table 7 (b)

Bond market yields

Differences between five-year government bonds and five-year foreign bonds

Currency of denomination	Min.	Max.	Range	Mean	Variance	Standard deviation	No. of obs.
US dollar	-0.06	1.03	1.09	0.60	0.05	0.22	61
Swiss franc	-0.37	1.02	1.39	0.57	0.05	0.22	61

Sources: Salomon Brothers "International Bond and Money Market Performance" (monthly), BIS calculations.

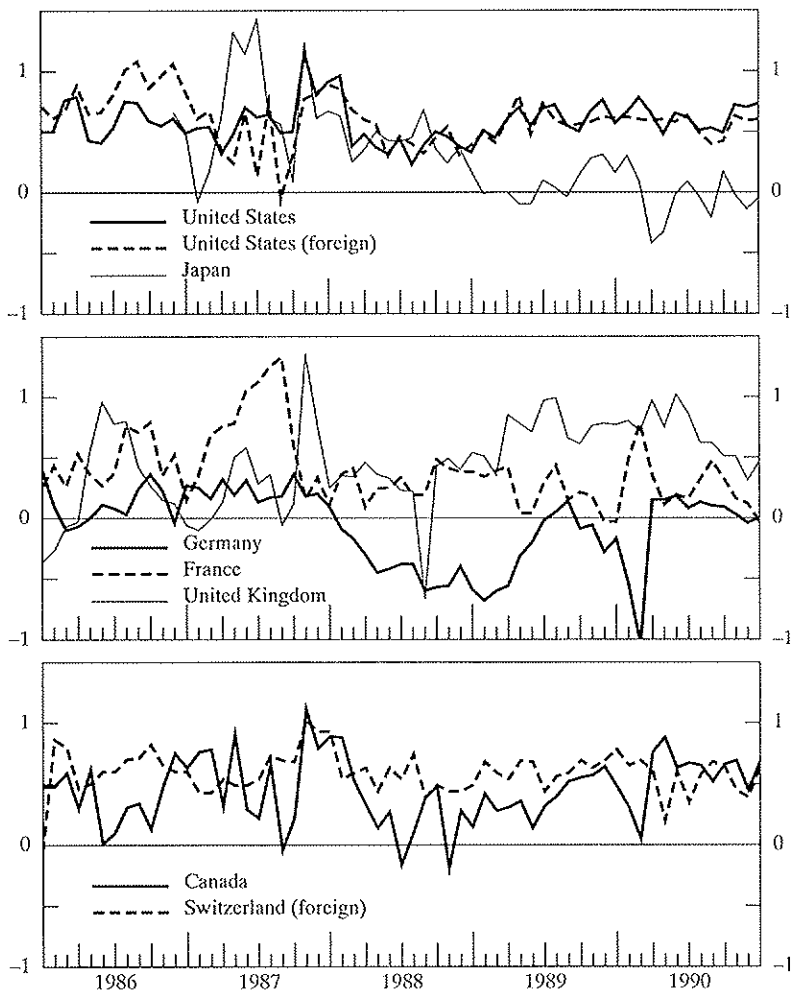
most of the period October 1987–April 1989, when the announced intention of the German Government was to introduce a 10% withholding tax on domestic bonds. The existence of a withholding tax on domestic yen bonds helps to explain why the average international/domestic yield spread in the yen sector has been relatively low, at about 0.3%.

An alternative perspective on the degree of integration of the different bond markets is provided by Tables 8, 9 and 10. Here, the links between the markets are investigated by examining the correlations and sizes of returns on different bond portfolios. The principal conclusion to emerge from this work is the increasing substitutability of domestic and international bond portfolios

Graph 3

Bond yield differentials¹

International bond yields² minus government bond yields, in percentage points



¹ Yields in semi-annual terms for a sample of bonds with an average life of five years.

² Euro-bonds except where otherwise stated.

Source: Salomon Brothers Inc.

Table 8
Correlation of monthly returns on bond portfolios
 In dollar terms

January 1978-December 1984

	US \$		Can. \$		DM		Swiss franc		Dutch guilder		Fr. franc		Pound sterling		Japanese yen		
	Govt.	Yan- kee	Euro	Govt.	Euro	Govt.	Euro	Govt.	For.	Govt.	Euro	Govt.	Euro	Gilt	Euro	Govt.	Sa- imurai
USG	1.00																
USY	0.91	1.00															
USE	0.91	0.95	1.00														
CAG	0.77	0.79	0.79	1.00													
CAE	0.60	0.71	0.70	0.77	1.00												
DEG	0.36	0.42	0.36	0.46	0.37	1.00											
DEE	0.40	0.44	0.39	0.45	0.35	0.98	1.00										
CHG	0.34	0.37	0.33	0.41	0.31	0.83	0.84	1.00									
CHF	0.43	0.45	0.42	0.46	0.36	0.84	0.87	0.97	1.00								
NLC	0.41	0.45	0.41	0.44	0.35	0.94	0.95	0.83	0.85	1.00							
NLF	0.39	0.45	0.40	0.44	0.37	0.94	0.95	0.83	0.86	0.99	1.00						
NLE	0.36	0.40	0.34	0.42	0.35	0.93	0.95	0.82	0.83	0.97	0.98	1.00					
FRG	0.25	0.34	0.30	0.37	0.31	0.84	0.86	0.76	0.77	0.87	0.87	0.85	1.00				
FRE	0.27	0.34	0.30	0.38	0.35	0.79	0.82	0.71	0.71	0.82	0.83	0.83	0.91	1.00			
GBGILT	0.41	0.41	0.37	0.45	0.43	0.44	0.46	0.43	0.41	0.48	0.45	0.47	0.35	1.00			
GBE	0.46	0.50	0.45	0.50	0.54	0.48	0.50	0.47	0.50	0.48	0.47	0.48	0.36	0.87	1.00		
JPG	0.28	0.39	0.32	0.32	0.39	0.53	0.58	0.58	0.56	0.56	0.58	0.58	0.60	0.61	0.37	1.00	
JPS	0.37	0.48	0.42	0.39	0.43	0.59	0.65	0.63	0.66	0.64	0.67	0.66	0.66	0.64	0.37	0.42	1.00
JPE	0.35	0.47	0.40	0.37	0.43	0.57	0.63	0.61	0.64	0.61	0.64	0.63	0.63	0.39	0.44	0.96	0.98

Source: Salomon Brothers, BIS calculations.

Table 8 (continued)

January 1985–October 1990

	US \$		Can. \$		DM		Swiss franc		Dutch guilder		Fr. franc		Pound sterling		Japanese yen		
	Govt.	Yan-kee	Govt.	Euro	Govt.	Euro	Govt.	For.	Govt.	For.	Govt.	Euro	Gilt	Euro	Govt.	Sa-murai	
USG	1.00																
USY	0.94	1.00															
USE	0.94	0.95	1.00														
CAG	0.73	0.76	0.75	1.00													
CAE	0.49	0.55	0.58	0.89	1.00												
DEG	0.31	0.27	0.30	0.30	1.00												
DEE	0.24	0.22	0.25	0.26	0.29	0.97	1.00										
CHG	0.19	0.16	0.20	0.19	0.21	0.89	0.93	1.00									
CHF	0.17	0.14	0.19	0.18	0.21	0.88	0.92	0.99	1.00								
NLG	0.28	0.26	0.29	0.31	0.34	0.97	0.99	0.92	0.91	1.00							
NLF	0.25	0.24	0.27	0.29	0.33	0.96	0.98	0.93	0.92	0.99							
NLE	0.21	0.19	0.23	0.26	0.31	0.95	0.97	0.93	0.92	0.98	1.00						
FRG	0.36	0.31	0.35	0.34	0.35	0.91	0.92	0.85	0.84	0.93	0.93	0.91					
FRE	0.27	0.24	0.28	0.29	0.33	0.92	0.94	0.86	0.85	0.94	0.94	0.94	1.00				
GBGILT														1.00			
GBE	0.19	0.12	0.17	0.30	0.32	0.64	0.66	0.65	0.65	0.67	0.66	0.66	0.99	1.00			
JPG	0.26	0.19	0.21	0.24	0.19	0.72	0.72	0.72	0.72	0.71	0.70	0.70	0.65	0.66	1.00		
JPS	0.19	0.14	0.16	0.21	0.19	0.75	0.76	0.78	0.78	0.75	0.75	0.76	0.66	0.67	0.97	1.00	
JPE	0.22	0.16	0.18	0.22	0.19	0.75	0.75	0.77	0.77	0.75	0.74	0.75	0.66	0.67	0.98	0.98	1.00

Table 9
Correlation of monthly returns on bond portfolios
 In local currency terms

Portfolios	January 1978- December 1984	January 1985- October 1990
US dollar		
Government/Yankee	0.91	0.94
Government/Euro	0.91	0.94
Yankee/Euro	0.95	0.95
Canadian dollar		
Government/Euro	0.66	0.88
Deutsche Mark		
Government/Euro	0.88	0.92
Swiss franc		
Government/Euro	0.66	0.86
Dutch guilder		
Government/Foreign	0.93	0.91
Government/Euro	0.81	0.66
Foreign/Euro	0.89	0.80
French franc		
Government/Euro	0.54	0.85
Pound sterling		
Government/Euro	0.68	0.94
Japanese yen		
Government/Samurai	0.73	0.78
Government/Euro	0.75	0.90
Samurai/Euro	0.87	0.73

Sources: Salomon Brothers, BIS calculations.

denominated in the same currency. In particular, as far as the sterling, Canadian dollar, French franc, Swiss franc and Japanese yen sectors are concerned, yields on international and domestic bond portfolios were much more closely correlated in the late 1980s than they were in the late 1970s and early 1980s.

Table 10
Average annual return on bond portfolios
 In percentages

Portfolios	In US dollar terms		In local currency terms	
	January 1978- December 1984	January 1985- October 1990	January 1978- December 1984	January 1985- October 1990
US dollar				
Government . . .	7.3	12.5	7.3	12.5
Yankee	8.7	12.4	8.7	12.4
Euro	9.4	10.8	9.4	10.8
Canadian dollar				
Government . . .	6.1	13.5	8.9	11.2
Euro	7.4	12.3	10.3	10.1
Deutsche Mark				
Government . . .	0.9	19.1	7.0	5.1
Euro	1.1	19.1	7.1	5.1
Swiss franc				
Government . . .	0.0	15.4	3.7	2.4
Euro	0.5	16.5	4.2	3.4
Dutch guilder				
Government . . .	2.3	19.1	8.9	5.1
Foreign	3.0	20.1	9.8	6.0
Euro	3.0	19.8	9.8	5.8
French franc				
Government . . .	0.5	23.2	11.3	10.5
Euro	1.6	22.0	12.5	9.5
Pound sterling				
Government . . .	4.5	20.3	12.2	10.1
Euro	4.0	19.8	11.6	9.7
Japanese yen				
Government . . .	7.1	17.6	7.8	4.9
Samurai	6.4	18.2	7.2	5.5
Euro	6.2	17.8	6.9	5.1

III. Convergence and portfolio and liability management

(a) Borrowers

The decision of borrowers and investors to use the international bond market is closely connected with the decision to exchange foreign currency denominated financial claims.⁵¹ An influential consideration in such decisions is the desire to minimise uncertainty. The popularity of certain currencies in the international bond market – the dollar, the Deutsche Mark, the Swiss franc and the Japanese yen – is probably partly associated with this kind of consideration. Another important factor in this regard has been direct restrictions, such as prohibitions on Euro-bond issuance or issuance queues. The situation in respect of the main currencies is summarised in Table 11. There has been a clear pattern of liberalisation of these controls in recent years, notably in the French franc, Deutsche Mark and Dutch guilder sectors.

Table 12, derived from the BIS database, shows the identity of borrowers in the international bond market and their currency preferences. The heavy use of the currency swap market suggests, however, that the information provided concerning the currency exposure needs to be interpreted with caution. Although more than four-fifths of borrowers in the international bond market choose to issue bonds denominated in a foreign currency, the extent to which these borrowings are swapped into own currency liabilities is not known.⁵² In certain cases – swaps associated with issuance by

⁵¹ For a theoretical treatment of the question of the currency choice for credit contracts, see for example Franke (1988) and Adler and Dumas (1983).

⁵² It is only recently that some statistical information on the pattern of swap activity has been available (in the quarterly reports of the BIS). The detail is still quite limited. For example, the geographical location of end-users is only known in broad outline – Asia, Europe, United States, etc. – while the nature of currency swap activity undertaken by different types of agent can only be guessed at from anecdotal information.

Table 11
Restrictions on issuance in the international bond market

Market	Comments
1. Free Euro-dollar Euro-Canadian dollar Euro-ecu	} No restrictions on issuance.
2. Modest restrictions/recently fully liberalised Euro-sterling	
Dutch guilder (foreign) Euro-Dutch guilder Swiss franc (foreign) Deutsche Mark (Euro/foreign) Euro-Swedish krona	
Euro-Danish krone Euro-Australian dollar	
3. Significant restrictions Yankee Euro-Japanese yen Samurai Euro-French franc Euro-lira	Public issues must be registered with the SEC. No restrictions on issuance. Since May 1984 non-Japanese issuers must have a formal rating of A or better. Ministry of Finance approval required. Eligibility standards cover the issuer's credit rating, financial strength and previous borrowing history, and vary according to the type of borrower (public or private sector) and amount and maturity of the issue. Volume and term limitations were abolished in July 1989. Committee of the Euro-French franc market (major French banks and Treasury) meets once a month and sets the issuance calendar for the month. The terms of the issue must be governed by French law and the principal paying agent must be located in France. Queue operated by the Bank of Italy.*
4. Severe restrictions Belgian franc (foreign) Euro-Austrian schilling Peseta (foreign)	Only supranational organisations of which Belgium is a member are permitted to issue. Issues generally not permitted. New issues have been prohibited during certain periods. Until summer 1990 only international organisations were permitted to use the market. Queue administered by the Spanish Ministry of Finance.
5. Prohibition Euro-Swiss franc Euro-Belgian franc	No Euro-bonds denominated in Swiss francs are permitted.

* In May 1991 the Italian Treasury announced that the queuing system would be abolished as from 1st July 1991.

Sources: European Bond Commission (1990), Bond Manuals (see bibliography), press articles, central banks.

Table 12
Composition of borrowing on the international bond market
 In billions of US dollars, end-1990

Borrower's country of residence	Total outstanding	Breakdown by type of borrower:					
		Central government	State-owned corporation	Other government	Bank	Other financial institutions	Other borrowers
Japan	317.7	-	0.7	3.5	52.2	15.7	245.5
United States	170.2	-	0.2	0.5	26.0	38.6	105.0
United Kingdom	127.8	4.0	0.6	-	31.6	49.0	42.6
Canada	107.9	4.4	0.8	36.5	15.5	7.7	43.0
France	90.8	-	6.5	0.3	37.1	13.8	33.1
Germany	64.5	-	0.2	0.9	42.8	5.8	14.7
Australia	46.3	7.4	0.5	7.2	15.5	4.4	11.3
Italy	46.0	16.2	0.8	0.5	11.7	4.6	12.2
Sweden	40.7	12.0	0.6	0.7	7.5	11.0	9.0
Austria	37.3	16.3	0.2	1.5	15.0	0.1	4.1
Denmark	32.2	17.4	0.3	1.9	5.8	3.3	3.5
Finland	28.2	5.9	1.1	-	13.0	3.7	4.5
Netherlands	26.1	-	-	0.3	7.6	4.6	13.7
Norway	22.4	2.8	-	1.5	8.8	3.6	5.7
Belgium	20.2	10.9	0.1	-	5.0	2.0	2.2
New Zealand	15.3	10.2	-	0.2	0.4	2.1	2.4
Ireland	10.3	8.2	-	-	1.6	0.1	0.5
Spain	9.0	1.6	0.6	0.1	2.0	0.7	3.9
Malaysia	6.4	6.3	-	-	-	-	0.1
International institutions	187.7	-	-	-	-	-	-
Other	65.5	-	-	-	-	-	-
Total	1,472.5				321.1	175.8	574.0

Source: BIS international bond database.

Japanese corporations in the Euro-dollar bond market, for example – it can be confidently assumed that swap activity markedly increases home currency exposure.

In the rest of this section, the pattern of usage of the international bond market is examined according to the major categories of borrower which are active in the market.

(i) International institutions

International – or supranational – organisations have formed a core part of the international bond market ever since the late 1960s. Two institutions in particular, the European Investment Bank (EIB) and the World Bank – whose borrowings together account for about

Table 12 (continued)

Borrower's country of residence	Breakdown by currency:						
	Domestic currency	US dollar	Japanese yen	Deutsche Mark	Swiss franc	Ecu	Other
Japan	18.5	205.8	*	11.2	69.2	5.7	7.3
United States	105.3	*	15.9	5.9	16.8	6.1	20.2
United Kingdom	70.8	36.5	4.3	4.0	5.7	1.5	5.0
Canada	21.2	57.7	8.7	4.3	10.5	1.2	4.3
France	12.7	26.5	12.9	5.1	7.6	12.9	13.1
Germany	33.3	9.8	1.2	*	6.2	2.0	12.0
Australia	8.3	13.4	7.0	2.7	5.5	1.2	8.2
Italy	4.4	18.3	6.5	2.1	2.9	8.5	3.3
Sweden	0.8	12.8	9.5	2.4	4.3	2.9	8.0
Austria	5.0	5.8	6.2	6.5	7.4	2.6	3.8
Denmark	1.6	9.0	7.8	3.7	2.2	2.6	5.3
Finland	1.3	8.1	8.2	2.8	1.7	2.3	5.1
Netherlands	7.3	4.6	0.5	2.9	4.4	2.1	4.3
Norway	0.4	7.8	5.9	1.5	2.7	0.4	3.7
Belgium	0.2	6.6	2.1	2.8	2.0	2.4	4.1
New Zealand	0.5	6.4	2.4	1.1	2.0	1.1	1.8
Ireland	-	3.5	1.4	3.2	1.0	0.7	0.5
Spain	-	3.4	1.5	1.4	1.6	-	1.1
Malaysia	-	3.8	1.1	1.0	0.3	-	0.2
International institutions	-	38.0	31.4	34.2	18.3	16.3	49.5
Total	-	607.6	168.0	147.4	175.3	74.6	299.6

* Not strictly applicable.

60% of all borrowings by international organisations in the international bond market – have played a major role in the development of the market. The World Bank, for example, was an active participant in the swap market in its early days, and was one of the pioneers of the fixed price re-offer technique introduced into the Euro-bond primary market during the latter half of 1989. Another important innovation associated with the World Bank has been the launch of so-called “global bonds”.⁵³

⁵³ A global bond differs from a Euro-bond in that it is in registered form, settlement of a trade can be made on Fedwire and it pays a semi-annual coupon.

The fact that international institutions are owned by the public sectors of a large number of countries has ensured that they have enjoyed various fiscal and other privileges. In particular, they have been permitted to borrow in currency sectors – such as the Spanish peseta, Belgian franc and Portuguese escudo – in which the authorities have otherwise adopted a very restrictive approach towards issuance. Both the World Bank and the EIB have borrowed in a wide range of currency sectors, although the EIB has tended to focus on European currencies, and in particular was during the 1980s the single most important issuer of ecu-denominated bonds in the Euro-markets (see Carpenter (1989)).

(ii) Public sectors

All of the public sectors which have been active issuers in the international bond market in the 1980s have access to developed domestic bond markets. Besides the desire of economic agents to minimise uncertainty in framing financial contracts, the theoretical literature⁵⁴ offers two explanations for the use of foreign currency debt by a government. Firstly, such debt can perform a hedging role if, for example, the cost of servicing it is positively correlated with the strength of the government's budgetary position. Secondly, foreign currency debt may be employed if a government is faced with a time inconsistency problem; that is to say, there exists a fear in financial markets that the real value of nominal debt denominated in the government's own currency will be eroded by inflation.

The nine most important public sector issuers in the international bond market are listed in Table 13, along with some relevant economic characteristics. At the end of 1989 these nine together accounted for about three-quarters of all outstanding international bonds issued by public sectors. They are all OECD member governments. They are all, moreover, highly rated and a glance at some of the economic data indicates why this is so. In all cases but

⁵⁴ See Bohn (1990a).

Table 13
Profile of public sectors particularly active in the international bond market
 In billions of US dollars

	Bond liabilities of the public sector:											Non-gold reserves, end-1990	Long-term interest rates (%) ¹	GNP (1990)	Exports (as a percentage of GNP)	Rating ²	Net external assets			
	Issued in the international market:				of which: denominated in													Issued in the domestic market ²		
	of which: issued by				Other	Central govt.	State agency	Local govt.	of which: issued by											
	US dollar	Deutsche Mark	Japanese yen	Swiss franc					US dollar	Deutsche Mark	Japanese yen									
Sweden	13.3	4.2	1.0	3.6	1.0	3.6	1.0	0.6	0.6	3.5	12.0	0.6	0.7	41.8	17.8	n.a.	230	33	AAA	-89 (1990)
Denmark	19.6	7.2	1.4	4.5	1.1	5.4	1.1	0.3	0.3	5.4	17.4	0.3	1.9	66.5	10.1	12.0	130	36	AA1	-48 (1990)
Ireland	8.2	1.9	3.2	1.2	0.9	1.1	1.1	0.0	0.0	8.2 ⁵	8.2 ⁵	0.0	0.0	23.3	4.8	11.7	40	72	AA2	n.a.
Australia	15.1	3.9	1.5	3.3	1.3	5.1	1.3	0.5	0.5	7.4	7.4	0.5	7.2	85.3	15.6	13.6	300	17	AA2	-114 (1989)
New Zealand	10.4	4.8	0.9	1.8	0.5	2.4	0.5	0.0	0.0	10.2	10.2	0.0	0.2	8.9	3.2 ⁶	14.4	45	30	AA3	n.a.
Austria	18.0	2.4	3.7	2.5	2.5	7.0	2.5	0.2	1.5	7.0	16.3	0.2	1.5	33.5	8.8	7.4	160	40	AAA	+17 (1989)
Belgium	11.0	4.8	2.3	1.4	1.4	1.1	1.4	0.1	0.0	10.9	10.9	0.1	0.0	197.9	11.2	9.5	195	73	AA1	-15 (1989)
Canada	41.7	24.6	1.8	3.9	4.6	6.7	4.4	0.8	36.5	6.7	4.4	0.8	36.5	264.9	15.8	10.7	580	25	AAA	-198 (1989)
Italy	17.5	9.6	0.0	1.6	0.3	6.1	0.3	0.8	0.8	16.2	16.2	0.8	0.5	617.1	60.2	13.1	1,090	19	AAA	-8 (1989)

n.a. = not available.

¹ Nominal stock of public sector bonds outstanding in international bond market. ² Nominal stock of public sector bonds issued in domestic bond markets. ³ Average long-term interest rate on domestic currency bonds, 1983-89. Over the same period average long-term interest rates for the major international currencies were as follows: US dollar: 9.7%; Japanese yen: 5.6%; Deutsche Mark: 6.8%; Swiss franc: 4.5%. ⁴ Moody's, foreign currency long-term bonds, end-1990; Sweden's rating was downgraded in the first quarter of 1991. ⁵ Includes \$ 0.3 billion issued by the central bank. ⁶ End-June 1990.

Sources: Annual Reports of the Austrian National Bank, the National Bank of Denmark (1990), the Central Bank of Ireland and the Reserve Bank of New Zealand, Moody's, IMF International Financial Statistics and Balance of Payments Yearbook, OECD, and BIS database.

two, foreign exchange reserves amount to more than one-half of the value of outstanding foreign currency bonds, and in all cases but one the value of the bonds is equal to less than six months' exports.

Only two public sectors of Group of Seven countries appear in Table 13. The five not included have made very little use of the international bond market. The United States Government has only issued foreign currency bonds once in recent years.⁵⁵ The domestic government bond market in the United States is probably so efficient and the borrowing requirements of the US Government so large that the international bond market could not be judged an appropriate place for raising funds – unless, as Bohn (1990b) has recently suggested, the hedging argument has some validity. Neither the German Federal Government nor the Japanese Government has used the international bond market in recent years and the French and UK Governments have only used the market for restricted purposes – in the French case, as a source of funds for state-owned corporations and in the UK case as an occasional means of boosting foreign exchange reserves.

The borrowing policies of the German and Japanese Governments and the figures on average long-term interest rates suggest that time inconsistency considerations help to explain use of the international bond market by public sectors. Both the German and Japanese Governments have been able to borrow at relatively low long-term nominal interest rates throughout the 1980s, indicating that these governments possess a high level of credibility in resisting short-term inflationary pressures. The governments listed in Table 13, with the exception of Austria, have all been faced with long-term interest rates in their domestic bond markets which have been significantly higher than those prevailing in the main currency sectors of the international bond market.

⁵⁵ These were the "Carter" bonds issued early in 1980. They were denominated in Deutsche Mark and Swiss francs, with distribution confined to banks and major financial institutions.

Apart from time inconsistency, there are a number of other factors which explain public sector usage of the international bond market. Several countries, such as Australia, Denmark and Canada, have large net external liabilities which encourage their public sectors to issue securities aimed at foreign investors. One country, Sweden, has until recently excluded foreign investors from its domestic bond market and three others – Ireland, Italy and Belgium – have very high levels of public indebtedness. Perhaps the most surprising entry in Table 13 is that of Austria, which has had relatively low long-term interest rates in its own domestic market and does not have a high level of indebtedness; its use of the international bond market may reflect the uncompetitiveness of the domestic Austrian bond market.

(iii) Japanese private sector borrowers

Since 1986 Japanese private sector borrowers have emerged as the single most important national group using the international bond market. They have been particularly prominent in certain sectors of the market, principally those of the dollar and Swiss franc, and about two-thirds of their issues have been equity-related. The majority of Japanese borrowers have been non-financial corporate entities, but banks and other financial companies have also been active. Although the syndicates placing the bonds have been international in character, they have usually been led by Japanese securities houses.

The volume of borrowing activity by Japanese entities in the international markets is somewhat paradoxical in view of the fact that Japan has been a major net exporter of capital in the latter half of the 1980s. However, certain institutional rigidities and regulatory aspects of the domestic Japanese capital markets have strongly encouraged business to move offshore. A commission bank system is operated in the domestic market which is partly used by banks as a means of restricting the extent to which credit flows through the banking system are diverted to the bond market. The Ministry of Finance operates a system of disclosure requirements for new issues which resembles the SEC requirements in the domestic US markets. Although Japanese companies borrowing in the international bond

market are also subject to such a system, the responsible section of the Ministry of Finance has operated it more flexibly. Companies have therefore been able to launch issues more quickly than in the domestic market, allowing them to take advantage of market conditions which are viewed as temporarily favourable. In addition to this, companies have been permitted to offer more unsecured debt in the international bond market and have generally found the restrictive covenants in that market to be less onerous. A number of other relevant aspects of the financial regime in Japan are listed in Table 14.

The character of bond issuance by Japanese entities, with its strong emphasis on equity-related finance, is closely linked with the large rise in equity prices that took place in the Japanese stock market over the period 1984-89. The chief equity-related instrument used by Japanese companies has been the bond with equity warrant, although substantial volumes of convertible bonds have also been offered. The bond with equity warrant is an instrument which at the time of its issue consists of two distinct components, a conventional fixed rate bond and a warrant, the latter entitling its holder to purchase a share of the company at a fixed price at any time during a prespecified period. The purchase price at which the warrant can be exercised is set some way above the current price of the firm's shares, and the warrant only has value insofar as there exists the possibility that the firm's share price may rise above the warrant's exercise price. The two components of a bond with equity warrant can be traded and held separately once the issue has taken place (the bond component is then referred to as an "ex-warrant"). At the time of issue, the terms of the bond and warrant have typically been set so that the warrants are worth about one-fifth of the total funds raised.

In the commentary below, explanations are offered for some of the most notable characteristics of Japanese companies' activities in the bond markets.

Table 14
**Institutional and regulatory factors affecting bond issuance by
 Japanese entities**

Factor	Description
A. Legal limit to corporate bond issuance	The legal limit is more severe for domestic, uncollateralised straight bonds (and, until April 1991, those with equity warrants).
B. Guidelines for eligibility of bond issuers	The basic motivation underlying these guidelines is investor protection. Apart from requiring that bond issuers satisfy certain financial criteria (e.g. threshold level for net worth), the most important guidelines have been those restricting the ability of a firm to undertake collateralised borrowing once it has offered an unsecured domestic bond.
C. Collateral requirements	Eligibility conditions for unsecured instruments have been somewhat weaker for external straight bonds, and substantially weaker for convertible bonds, than for their domestic counterparts.
D. Commission banks	Although not required by law to do so, all domestic bonds have a commission bank.
E. Determination of interest costs	The process by which interest costs are determined has been more competitive in the international than in the domestic Japanese bond market because of the participation of Japanese banks and foreign securities houses in the international market.
F. Other	
(1) Disclosure requirements	Disclosure requirements for external bonds were considerably less onerous than those for domestic bonds.
(2) Restrictions on issuable domestic bonds	Non-standard bonds, such as floating rate notes and deep discount bonds, are not permitted on the domestic market.
(3) Restrictions on domestic private placement	Firms permitted to offer publicly placed bonds are restricted in the volume of funds they can raise from private placements.
(4) Timing of domestic issuance	Until 1987 domestic issues were offered on the last day of the month, restricting borrowers' scope to take advantage of temporarily favourable market conditions.
(5) "Third-day" rule	Proceeds of domestic bond offerings only become available to the borrower three days after issuance.
(6) Tax treatment	Interest payments on an external bond issued by a Japanese resident are exempt from withholding tax, provided that the bond's maturity at issue is more than four years.
(7) Restrictions on sales of Euro-yen bonds to domestic investors	Euro-yen bonds cannot be sold to Japanese residents for a certain period (since 1986, 90 days) after their issuance.

1. A majority of convertible bonds issued by Japanese entities since the mid-1980s have been offered in the domestic market

Although Japanese entities offered very few straight bonds in the domestic market in the late 1980s, their issues of domestic convertible bonds doubled between 1986 and 1989. This pattern of borrowing activity was encouraged both by more competitive determination of interest costs and a relaxation of collateral requirements on domestic convertible bonds.

2. Most convertible bonds issued by Japanese entities in the international markets have been denominated in Swiss francs

Japanese borrowers were attracted to the Swiss franc sector of the international bond market because of the low nominal interest rates prevailing on Swiss franc-denominated bonds and the light procedural burdens associated with private placements in this market. Many Japanese borrowers took the view that Swiss franc-denominated debt would prove to be a cheap source of funds ex post. This view was supported by events in the late 1980s,⁵⁶ but in 1990 a depreciation of the yen against the Swiss franc combined with a sharp fall in Japanese equity prices placed some of these borrowers in difficulty.

3. Most bonds with equity warrants issued by Japanese entities have been denominated in dollars

Many Japanese institutional investors have a preference for financial assets on which the return takes the form of income (or coupon) rather than capital gain. For this reason, most ex-warrants (the fixed rate bonds which remain once the equity warrants have been detached), which typically carry very low coupons, were sold to non-Japanese investors. These investors were more interested in acquiring dollar-denominated than yen-denominated assets.

⁵⁶ The yen appreciated by some 5½% against the Swiss franc between the end of 1986 and the end of 1989. Long-term interest rates for both currencies fluctuated around 4-5% during this period.

4. Very few bonds with equity warrants have been issued by Japanese entities in the domestic market

The more competitive determination of interest rate costs in the international bond market appears to have prevented the domestic Japanese market from attracting the issuance of bonds with equity warrants.

5. Only a small proportion of Japanese residents' borrowings in the international bond market have been denominated in yen

Until 1985, withholding tax rules applied to the Euro-yen bond market effectively prevented the use by Japanese residents of this sector. Thereafter, the main factor discouraging the issuance of Euro-yen bonds by Japanese entities was the restrictions placed on the sale of these bonds in Japan.

(iv) US private sector borrowers

Prior to the surge of activity by Japanese borrowers in the latter half of the 1980s, US private sector borrowers were the single most important national group in the international bond market. Together with the imposition of withholding tax in the domestic US market, the SEC registration requirements played an important role in promoting US companies' use of the international bond market.

The Securities and Exchange Commission (SEC) is a quasi-judicial agency of the US Government which was created to administer federal securities legislation enacted in the early 1930s. The main aim of the legislation it administers is to ensure that investors have access to accurate and detailed information on the securities that are offered and traded in the domestic US financial markets. Accordingly, a company intending to issue a security which is to be offered to US residents must first register the issue with the SEC, providing detailed financial information.⁵⁷ Before 1982, this registration process

⁵⁷ This sentence describes the state of affairs prevailing prior to SEC's adoption of Rule 144a in April 1990. This rule deregulated secondary trading of unregistered securities among qualified institutional investors – those with at least \$100 million invested in securities.

typically took around four weeks to complete. Since interest rates could move by a substantial amount over a period as long as this, a bond issue which originally appeared to be an attractive source of funds for a company might, by the time the registration process was complete, seem to be extremely expensive. A company faced with this kind of situation could withdraw the issue, although such an action would damage the relationship of the company with the issuing syndicate. Moreover, once the registration process was complete, a substantial part of the issuance costs would already have been incurred.

The introduction of the bought deal in the Euro-bond primary market allowed borrowers in that market to react much more quickly to the opening of favourable issuing opportunities, and created an important competitive disadvantage for the US domestic market. In 1982 the SEC introduced shelf registration, a procedural change intended to allow firms to register any securities reasonably expected to be sold over a two-year period; once shelf registration had occurred, the issuer could sell the securities whenever it chose. This procedural change was made permanent in 1983 and has markedly reduced the length of the registration process, thereby eliminating an important competitive disadvantage suffered by the domestic US market.⁵⁸

Most US borrowers in the international bond market have been large non-financial corporations. These issuers have traditionally enjoyed particular favour with small retail investors, who typically preferred familiar non-public sector names. From the mid-1980s onwards, however, a wave of takeover activity in the United States transformed the credit-standing of many of these corporations in the international financial markets. A number of large US corporations were subject to debt-financed bids which resulted in sharp falls in the prices of their bonds. This development, combined with withholding tax changes and the introduction of shelf registration, has curtailed US borrowers' activity in the international bond market in recent

⁵⁸ For a more detailed account of the reform, see Jones (1987) pp. 224-227.

years. Partly as a consequence of the deterioration in their credit-standing, a substantial proportion of recent issues by US borrowers has taken the form of asset-backed securities, for example bonds secured by credit card receivables.

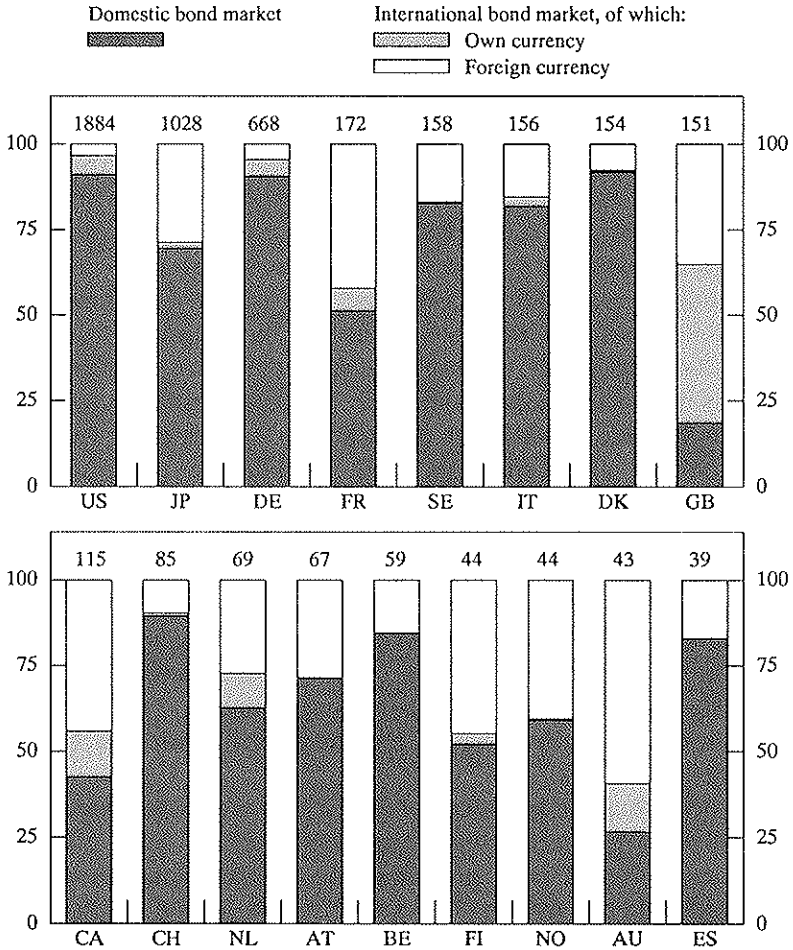
(v) Other private sector borrowers

Private sector borrowers outside the United States and Japan account for about one-third of outstanding bonds in the international bond market. This group is divided roughly equally between financial and non-financial companies. Non-financial companies have frequently been more prominent in the international market than in the domestic markets, partly because they are often multinational companies and are therefore willing to incur foreign currency liabilities, and partly because they are sometimes discriminated against in domestic capital markets. German industrial companies wishing to issue bonds in the domestic market, for example, must undergo the time-consuming and troublesome procedure of obtaining government approval;⁵⁹ they have, as a consequence, confined their issuing activity to the international market in recent years. The extent to which private sector borrowers have used the international bond market has varied considerably across countries (see Graph 4). The international bond market has been particularly successful in attracting private sector issuance away from the domestic markets of the English-speaking countries, with a sizable proportion of these issues being denominated in the borrower's home currency.

In most domestic European bond markets mortgage institutions have a major presence. With the notable exception of UK building societies, however, these institutions have made little use of the international bond market. Direct funding restrictions and issuance queues appear to account for this behaviour. Late in 1990, however, following the abolition of exchange controls in Sweden, a Swedish

⁵⁹ For further details on this and other difficulties which such issuers face, see Fage and Hammigan (1988), p. 159.

Graph 4
Private sector borrowing on the bond markets
 In percentages*



Note: US=United States; JP=Japan; DE=Germany; FR=France; SE=Sweden; IT=Italy; DK=Denmark; GB=United Kingdom; CA=Canada; CH=Switzerland; NL=Netherlands; AT=Austria; BE=Belgium; FI=Finland; NO=Norway; AU=Australia; ES=Spain.

* The value above each bar is total private sector borrowing in that country at end-1990, in billions of US dollars.

mortgage company issued \$160 million of securitised dollar floating rate notes.⁶⁰

(b) Investors

The bearer form of Euro-bonds precludes the possibility of saying anything precise about the investor profile of the international bond market.⁶¹ Some plausible conjectures can nevertheless be made concerning the nationality of investors in the different currency sectors. In view of the restrictions on US investors acquiring securities not registered with the SEC and the universal appeal of dollar-denominated assets, it is likely that the majority of dollar Euro-bonds are held by non-US investors. The absence of withholding tax on international yen bonds – a matter of importance for non-Japanese investors, because only foreign central banks are exempt from withholding tax on bond investments in the domestic Japanese market – is likewise a factor suggesting that the profile of investors in this sector will be dominated by foreigners. The proportion of foreign holdings in the international DM sector is known to be about three-quarters and is substantially higher than foreign participation in the German government bond market.

Despite the pattern of financial liberalisation during the last decade, most institutional investors continue to be constrained in their ability to acquire foreign securities.⁶² In certain cases, exchange

⁶⁰ For an account of this issue, see *International Financing Review*, November 3 1990, p. 43.

⁶¹ Some indication of the overall importance of cross-border bond holdings is provided by external balance-sheet information (see Table A).

⁶² An important example in this regard are German insurance companies, which are permitted to acquire foreign currency assets only to cover their foreign business. Another important set of constraints are those which specify that financial institutions should invest some minimum part of their portfolios in government debt. The holdings of some of the more internationally active institutions in various countries are recorded in Table 25 of Turner (1991). In addition to the investors listed there, it is believed that a significant amount of central banks' reserves are invested in sovereign and supranational paper issued in the international bond market.

controls have only recently been dismantled,⁶³ and considerable scope for further portfolio diversification exists. This diversification should benefit the international bond market.

(c) Innovations

One important advantage enjoyed by the Euro-bond market over the domestic bond markets is its ability to adopt new financial structures. In many cases innovations have been tailored to meet the preferences of particular investors or borrowers, but a handful have proved to be more enduring and important.

(i) Floating rate notes (FRNs)

The first floating rate notes were issued around 1970 but the structure did not become popular until the 1980s. Rather than undertaking to make coupon payments whose nominal value is fixed, the issuer of an FRN pays the investor an amount which is linked to some short-term market interest rate. The interest rate most commonly chosen for this purpose has been six-month LIBOR,⁶⁴ the rate at which banks in the Euro-markets have been prepared to lend six-month funds to one another. This interest rate is the price of credit in a very large and competitive market, so the likelihood of it being manipulated is extremely remote. FRNs have proved particularly popular as a source of funds with UK borrowers and financial institutions; they have for the most part been denominated in either sterling or dollars (see Table 15).

Issuing activity in the FRN market reached a peak in the mid-1980s, at a time when a number of banks had found it advantageous to offer perpetuals in the market.⁶⁵ Towards the end of 1986, however, the secondary market for perpetual FRNs underwent a

⁶³ See Table D.

⁶⁴ The London interbank offer rate.

⁶⁵ The banks' principal motive for doing so was the decision by the authorities to count perpetuals as primary capital.

Table 15
**Comparison of the fixed and floating rate sectors of the
international bond market**
As a percentage of the total outstanding

	Floating rate sector	Fixed rate sector
Total outstanding (US\$ billions, end-1989)	166	1,085
Breakdown by:		
1. Residual maturity		
under 5 years	28	64
5-10 years	37	26
over 10 years	35	10
2. Borrower's home country		
United States	18	12
United Kingdom	28	5
France	9	5
Other	45	78
3. Currency		
Deutsche Mark	7	10
Pound sterling	17	5
US dollar	65	42
Other	11	43
4. Borrower type		
Public sector	17	15
Bank	47	19
Other financial institution	24	9
Non-financial private sector	10	44
International institution	2	13

Source: BIS international bond database.

crisis. The bid/ask spreads of market-makers widened sharply and trading came to a virtual halt.⁶⁶ Subsequently the crisis spread to the rest of the FRN market; issuance volumes slumped and even in 1990 had still not returned to the levels witnessed in 1985 and 1986.

(ii) Swaps

A swap transaction allows a counterparty to transform the currency of denomination and/or interest rate structure of its long-term borrowings.⁶⁷ Since the first pioneer swap transactions

⁶⁶ More detailed accounts of the crisis are to be found in Davis (1989) and Gallant (1988) pp. 169-171.

⁶⁷ Descriptions of the swap instrument are to be found in Bank for International Settlements (1986), Chapter 2, and at greater length in Das (1989). Bank for International Settlements (1989) contains a survey of the information provided by the International Swap Dealers' Association.

were completed in 1981, the market for this financial instrument has expanded at a remarkable pace and by the end of 1989, according to figures supplied by the International Swap Dealers' Association (ISDA), swaps based on a nominal amount of some \$2 trillion were outstanding.

The popularity of swaps has been explained as a response by borrowers to the fact that they enjoy a comparative advantage in raising funds in certain sectors of the capital markets. Such comparative advantage can arise for regulatory reasons or if a borrower's name is familiar to investors in one market but not in another. A notable example of swap activity stimulated by regulatory factors is provided by the World Bank. This institution has enjoyed privileged access to many bond markets. Its assets, however, are almost entirely denominated in Deutsche Mark, Swiss francs, yen and dollars, reflecting its preference for lending in low interest rate currencies. The World Bank has therefore swapped most of its issues in other bond markets in exchange for obligations to make payment streams denominated in one of these four currencies.

The swap market is now a major financial market in its own right and swap transactions have become an important means by which companies, financial institutions and governments manage their financial positions. Nevertheless, there continues to be a close link between the international bond market and the market for swaps and a substantial but unknown proportion of international bond issues are associated with a swap transaction.

(iii) Warrants

Bonds with equity warrants were first issued in the Euro-markets in 1982, although it was not until 1987 that substantial funds were raised in this way. The involvement of Japanese borrowers with the equity warrant market has already been described. The presence of non-Japanese borrowers in this market has, by contrast, been limited (see Table 16). The nature of an equity warrant is such that it provides its holder with very large capital gains during a period of rising share

prices, such as that observed in Japan between 1985 and 1989.⁶⁸ Prices of equity warrants are in general very volatile; for example, at the time of the equity market crash in 1987, the prices of equity warrants halved. It is not yet clear whether equity warrants were a feature of the particular circumstances associated with the bull market in Japan in the late 1980s. During the first half of 1990 a sharp fall in Japanese equity prices occurred and a temporary moratorium on equity-related international bond issues by Japanese entities was declared. After the moratorium was lifted, in mid-year, the volume of equity-related issues by Japanese borrowers was only around one-half of the level observed in 1988 and 1989.

Table 16

Profile of the equity-related sector of the international bond market

	Convertible bonds	Bonds issued with equity warrants*
Total outstanding (US\$ billions, end-1989)	71.5	153.3
Breakdown by:		
1. Borrower type		
Bank	20	6
Other financial institutions	4	5
Non-financial private sector	76	89
2. Currency		
US dollar	39	83
Swiss franc	43	7
Pound sterling	9	1
Deutsche Mark	3	7
Other	6	2
3. Issuer's home country		
Japan	59	85
Germany	1	5
United Kingdom	9	1
United States	16	1
Other	15	8

* In addition, at the end of 1989 the following bonds issued with other types of warrant were outstanding: Bonds with debt warrants \$ 12.5 billion, currency warrants \$ 0.6 billion, gold warrants \$ 0.9 billion, other warrants \$ 2.1 billion.

Source: BIS international bond database.

(iv) The ecu bond market

Since the inception of the Euro-bond market a number of bonds have been issued denominated in a unit of account which is not an

⁶⁸ Equity prices in Japan trebled between the end of 1985 and the end of 1989.

actual currency. Early examples of this type were bonds denominated in EUAs (European units of account) and SDRs. Unlike its successor, the ecu, the EUA was not a basket currency and a number of different definitions were employed: at one point, four different types of EUA were in use in the bond markets.⁶⁹

Despite their record of innovation, the Euro-markets have been cautious in their use of “artificial” units of account and their behaviour in this area has been strongly influenced by official policy. The history of the ecu financial markets illustrates this observation well.

Created at the time of the founding of the European Monetary System (EMS), the ecu is defined in terms of specified quantities of EC member countries’ currencies.⁷⁰ The operating arrangements of the EMS require the EC central banks to hold notional ecu-denominated deposits with the European Monetary Co-operation Fund (EMCF). Moreover, the central parities of the currencies participating in the exchange rate mechanism (ERM) are defined in terms of the ecu.

In the early 1980s commercial banks began to create ecu-denominated assets and liabilities and in 1981 the first ecu-denominated bonds were issued. Commercial banks are not entitled to hold deposits with the EMCF and the “official” and “private” markets for ecu-denominated financial instruments have always been quite distinct.⁷¹ Until the late 1980s the ecu sector of the Euro-bond

⁶⁹ Gilibert (1989) provides a brief history of bonds denominated in EUAs.

⁷⁰ The composition of the ecu currency basket has been modified on two occasions, in 1984 (when the Greek drachma was introduced) and in 1989 (when the Spanish peseta and Portuguese escudo were introduced). For details, see Bishop (1990b), Paribas Capital Markets Group (1990) or Knott et al. (1990).

⁷¹ This terminology is perhaps a little misleading. By the “official sector of the ecu financial markets” is meant simply the notional deposits held with the EMCF. The “private” market for ecu-denominated instruments includes not only all bonds denominated in ecus – such as those issued by governments and international organisations – but also commercial banks’ ecu-denominated liabilities, a significant proportion of which are deposits held by central banks as part of their foreign exchange reserves.

Table 17
The ecu bond market
 In billions of US dollars, nominal outstanding, end-1990

Issuer's country of residence	Borrower type:						Total
	Public sector			Private sector			
	Central govt.	Agency	State & local	Non-financial	Bank	Non-bank financial	
Euro-bonds							
Italy	5.3	-	-	0.3	1.7	1.2	8.5
France	-	1.6	0.1	4.1	3.7	3.5	12.9
Belgium	1.1	-	-	0.1	0.8	0.4	2.4
Denmark	1.5	-	0.4	0.1	0.4	0.2	2.6
Netherlands	-	-	-	0.7	0.6	0.8	2.1
Ireland	0.7	-	-	-	-	-	0.7
Germany	-	-	-	0.2	1.8	-	2.0
United Kingdom	-	-	-	0.6	0.3	0.6	1.5
Portugal	0.2	-	-	-	-	-	0.2
Luxembourg	-	-	-	0.1	0.4	-	0.5
Total EC	8.8	1.6	0.5	6.2	9.7	6.7	33.4
Austria	0.7	-	0.1	0.2	1.6	-	2.6
Finland	0.3	-	-	0.6	0.6	0.8	2.3
Norway	-	-	0.1	-	0.1	0.1	0.3
Sweden	0.7	0.1	-	0.8	0.2	1.0	2.9
Switzerland	-	-	-	0.1	-	0.9	1.0
Hungary	0.1	-	-	-	-	-	0.1
Total non-EC Europe	1.8	0.1	0.2	1.7	2.5	2.8	9.2
United States	-	-	-	5.6	0.2	0.3	6.1
Japan	-	0.3	-	3.2	1.8	0.4	5.7
Australia	-	-	0.3	0.2	0.7	0.1	1.2
New Zealand	1.0	-	-	0.1	-	-	1.1
Canada	-	-	0.2	0.4	0.1	0.5	1.2
Other non-European	0.3	0.1	0.1	0.2	-	-	0.7
Total non-Europe	1.3	0.4	0.6	9.7	2.8	1.4	16.0
International organisations	-	-	-	-	-	-	16.3
Domestic							
Italy	34.7	-	-	-	-	-	34.7
France	7.5	-	-	-	-	-	7.5
Spain	0.7	-	-	-	-	-	0.7
Greece	4.9	-	-	-	-	-	4.9
Grand total	-	-	-	-	-	-	122.7

market was small, but issuance volumes rose sharply towards the end of the decade and by the end of 1990 the sector was the sixth-largest in the international bond market (see Tables 17 and B1). Several EC governments had also offered ecu-denominated bonds in their domestic bond markets, the most important programme being that of the Italian Treasury. These domestic ecu bonds differ from Euro-bonds in various respects (see Table 18).

Investor interest in ecu bonds grew steadily in the second half of the 1980s, stimulated by falling inflation rates in France and Italy and an absence of realignments within the ERM – other than a small technical one for the lira – after 1987. With the accession of sterling to the ERM in September 1990 it has become possible to view ecu-denominated assets as a high-yielding but relatively close substitute for those denominated in Deutsche Mark. Since the 1989 reweighting of the ecu, actual yields on ecu bonds have typically been below synthetic yields,⁷² perhaps reflecting the fact that ecu bonds allow investors to obtain their desired portfolios with lower transaction costs than would otherwise be the case. Investors have also been attracted to ecu bonds because they enable a portfolio to include, in effect, peseta and lira-denominated bonds exempt from withholding tax. Such bonds have been in short supply.

Few private sector borrowers have shown interest in accumulating ecu-denominated liabilities. A large majority of private sector issues of ecu bonds – such as those offered by US and Canadian corporate borrowers – have been associated with currency swaps. The ecu-denominated CTEs, issued by the Italian Government in the domestic

⁷² The synthetic yield on an ecu bond is the yield which would be obtained on an equivalent portfolio of EC government bonds, see Appendix 2 in Paribas Capital Markets Group (1990). One problem which arises in the calculation of synthetic yields on longer-maturity ecu bonds is that long-maturity government bonds denominated in Greek drachmae, Portuguese escudos and Spanish pesetas do not exist. In practice, therefore, an element of judgement is involved and the researcher has no choice but to make some kind of extrapolation from shorter yields for these currencies.

Table 18
Characteristics of ecu-denominated domestic and Euro-bonds

Issuers and bonds	Withholding tax	Payments in ecus?	Can bond be cleared on Euroclear and CEDEL?	Bearer/registered	Governing law	Listing	Eligibility for ecu bond futures contracts on:	
							LIFFE	MATIF
Ecu-denominated Euro-bonds issued by:								
Italian government	X	✓	✓	Bearer	Italian	Luxembourg	✓ ¹	X
UK government	X	✓	✓	Bearer	English	London	✓	✓
EIB	X	✓	✓	Bearer	English	Luxembourg	✓	X
Other	X	✓	✓	Bearer	Usually English	Usually Luxembourg	X	X
French government ecu OATs	X	✓	✓	Registered	French	Paris	✓	✓
Italian government CTEs	✓	✓ ²	X	Registered	Italian		X	X
Spanish government Bonos del Estado	X	✓	✓	Registered	Spanish	Madrid	X	X
Greek government bonds	X	X ³	X	Registered	Greek	Athens	X	X

¹ Under review. ² For non-Italian investors. ³ Drachmae linked to the ecu/drachma exchange rate.

market and subject to a 12.5% withholding tax, have stimulated much of this swap-driven activity.^{73,74}

Issues by the Italian, French and UK Governments have transformed the character of the ecu bond market. These issues are among the most widely traded of all international securities⁷⁵ and have prompted the futures exchanges LIFFE and MATIF to introduce contracts based on ecu-denominated bonds. These contracts did not attract the kind of trading volumes recorded for the Bund, OAT and gilt contracts, partly because the stock of deliverable bonds is somewhat smaller (see Table 19). Indeed, by the autumn of 1991 the LIFFE contract had virtually ceased to be traded.

Changes in the composition of the basket of currencies defining the ecu have given rise to some uncertainty in the ecu bond market. It was generally understood prior to 1989 that the Spanish peseta and Portuguese escudo would enter the basket in that year, but the precise composition of the new basket was not announced until June.⁷⁶ Very little change in ecu bond prices occurred in the wake of this announcement, suggesting that the recomposition was close to market expectations. Once the prospective role of the ecu in EC monetary arrangements has been clarified, public sector funding policy in the large EC countries will largely determine the fate of the ecu bond market. A large programme of borrowing by several

⁷³ The counterparties in these swap transactions who have undertaken the obligation to pay a fixed rate ecu stream have been investors in CTEs. These entities have been engaged in arbitrage, taking advantage of the facts that (i) yields on CTEs are higher than those on ecu Euro-bonds, and (ii) they can use the 12.5% withholding tax paid to the Italian Government to reduce their tax liabilities in their country of residence.

⁷⁴ Knott et al. (1990) estimate that CTEs created favourable swap rates for about one-third of all ecu Euro-bonds issued in 1989 and 1990.

⁷⁵ In the table on p. 13 of Paribas Capital Markets Group (1990) showing the ten most actively traded fixed rate bonds on CEDEL, seven of the ten are ecu-denominated bonds.

⁷⁶ The recomposition took effect on 29th September 1989.

Table 19
European bond futures contracts

	Exchange	Contract size ¹	Option on contract available?	Nominal outstanding of deliverable bonds for June 1991 contract ¹ (ecu bn)	Average turnover 1990 (millions of contracts)	Open interest end-1990 contracts (ecu bn)
Bund . . .	LIFFE	DM 250,000	X	42.8	9.6	75,909 (9.2)
French government bond	MATIF	Fr.fr. 500,000	✓	19.1	16.0	71,805 (5.2)
Gilt	LIFFE	£ 50,000	✓	25.7	5.6	24,349 (1.7)
Ecu	1. MATIF	ecu 100,000	X	6.7	0.6 ²	7,109 ³ (0.7)
	2. LIFFE	ecu 200,000	X	9.9	0.4 ²	10,299 ³ (1.0)

¹ At end-1990 exchange rate parities in the ERM were: ecu 1 = DM 2.056 = Fr.fr. 6.895 = £ 0.697. At the same date, ecu 1 = \$ 1.363. ² March 1991 at an annual rate. ³ End-March 1991.

governments would stimulate private sector use of ecu bonds by enlarging the investor base, increasing familiarity with the instrument and facilitating hedging strategies. Such a development, if it were to occur, would greatly reinforce the integration of the European bond markets.

Conclusion

The paper has examined the extent to which convergence of the domestic and international bond markets is taking place. This issue is important for at least two reasons: it provides one way of verifying the usefulness of the paradigm of a world capital market and it provides a means of assessing the prospects for the international sector.

Convergence

A number of factors point towards the growing integration of the world bond markets.

The abolition of exchange controls in the major OECD economies has markedly reduced the authorities' ability to influence exchange rates through the use of direct restrictions. As a consequence, the purpose of various issuance queues and prohibitions affecting the Euro-bond market has been thrown into question. There is a discernible trend towards liberalising these restrictions. Moreover, in cases where restrictions are still of major importance – for example, in the yen bond markets – the swap market appears to have provided borrowers with a means of attenuating their effectiveness.

Examination of bond yields and prices indicates that the international and domestic markets have become more closely integrated in the latter half of the 1980s. The stability of the spread between Euro and foreign dollar bond yields over US government bond yields is particularly noticeable. A similar degree of stability is also evident in the Swiss franc foreign bond market.

Another trend evident in the last decade has been the reform or abolition of withholding tax regimes. Germany and the United States, and (with respect to non-residents) France and Spain have all adopted such a policy, which has had the effect of increasing the substitutability of Euro and domestic bonds quoted in the currencies of these countries. Several countries which still levy withholding taxes – such as the United Kingdom and Italy – allow foreign investors to reclaim the tax. In the longer term, monetary union in the EC would encourage the adoption of a common withholding tax policy for the whole region.

The Euro-bond market has now established itself as an important element of competition for both the domestic and foreign bond markets. It has achieved this position through a combination of an organised system of secondary trading and a highly competitive primary issuance industry. As a consequence, the Euro-market is the natural choice for most issuers of foreign currency bonds. In several

cases – the English-speaking countries, the Netherlands and to a lesser extent Germany and France – the Euro-markets have also attracted a significant part of private sector borrowers' issuance of domestic currency bonds.

Despite the rapid expansion of the Euro-bond market in the last decade, a large number of regulatory constraints limit the substitutability of Euro and domestic bonds from the point of view of both borrowers and investors. These constraints take several different forms. Apart from the issuance queues, there are limitations on the extent to which certain types of borrower (for example, mortgage institutions) can use the Euro-bond market, constraints on the use of funds raised from this source and restrictions on institutional investors' freedom to acquire foreign securities. It is evident that many of these restrictions will continue to apply for the foreseeable future.

Prospects

The second half of the 1980s witnessed a shift of emphasis in the international bond market. US borrowers – who until the early 1980s had formed the mainstay of the Euro-bond market – undertook no net borrowing from this source during the period 1987–89. Issuance activity by several other groups, in particular Japanese but also EC borrowers, was by contrast very buoyant and allowed the international sector to expand more rapidly than the world bond market as a whole. The sharp decline in Japanese equity prices in 1990 was accompanied by a slump in international bond issues by Japanese entities. However, by mid-1991 issuance by Japanese firms had recovered, suggesting that in the absence of fundamental reform of the Japanese domestic financial markets Japanese residents will continue to be the pre-eminent borrowing group in the international bond market. By 1991 it was also noticeable that a number of non-OECD sovereign borrowers – such as Mexican and Brazilian state-owned corporations – were again able to gain access to this market. From a long-term historical point of view it would not be surprising if the international bond market in the 1990s were to provide substantial funds to such entities.

In fundamental terms, the prospects for the international bond market rest upon its ability to innovate, its competitiveness (closely related to the broad spread of securities houses participating in the market) and differences in the tax and regulatory treatment of domestic and international bonds. All of these factors seem certain to sustain a role for the international bond market for the foreseeable future. It is likely, however, that the distinctions between domestic and international bonds – notably those issued by European residents – will become increasingly tenuous, especially if a large market for public sector ecu-denominated bonds evolves.

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Table A
The composition of external balance sheets¹
 In billions of US dollars

		Non-cash assets			Non-cash liabilities			Net cash	Net external assets
		Total	Bonds	Shares ²	Total	Bonds	Shares ²		
United States	1989	755	100 ³	90	1,400	630	260	- 20	-665
	1988	655	95	65	1,185	555	200	0	-530
	1983	440	60	25	505	190	95	155	90
Japan	1989	1,770 ⁴		536 ⁵	1,480 ⁴	240	150	-	290
	1988	1,480		425	1,190	180	120	-	90
	1983	280		55	240	45	55	-	40
Germany	1988	535	110	70	340	105	60	10	205
	1983	205	20	25	145	15	20	- 30	30
France	1988	305	25	-	355	75	-	20	- 30
	1983	150	5	-	115	30	-	5	40
United Kingdom	1989	660	125	230	360	75	85	-120	180
	1988	530	100	170	250	50	55	-110	170
	1983	210	30	60	90	15	10	- 40	80
Canada	1988	170	-	-	370	125	135	10	-190
	1983	90	-	-	185	60	90	- 15	-110
Italy	1989	175		40 ⁶	180		30 ⁶	- 70	- 75
	1988	145		25	135		15	- 60	- 50
	1983	60		5	65		5	- 15	- 20

- Indicates not available.

¹ Non-US dollar magnitudes converted at end-year exchange rates. ² Excluding direct investment. ³ Excludes official reserves held in the form of bonds. ⁴ Includes cash. ⁵ No breakdown of Japanese residents' holdings of overseas securities is published. It is thought that equity holdings account for around 12% of these holdings. ⁶ No breakdown between bonds and shares is available.

Sources: OECD Financial Accounts, Financial Flow and National Balance Sheet Accounts of Canada, UK Balance of Payments.

Table B1

The twenty-one largest currency sectors of the global bond market, end-1990

Nominal value outstanding, billions of US dollars equivalent¹

Bond market	Total publicly issued	Domestic sector						International sector	
		Public sector			Private sector			Foreign	Euro
		Central government	Agency	State and local	Non-financial	Bank	Non-bank financial		
US dollar	5,984.9	1,653.4	1,413.5	596.0	1,187.6	109.2	417.6	81.7	525.9
Japanese yen	2,576.9	1,163.6	387.2	143.3	212.0 ²	502.8	-	52.1	115.9
Deutsche Mark	1,123.8	295.3	49.3	27.0	1.7	603.1	-	147.4	-
Italian lira	759.4	594.0	23.1	-	4.3	-	123.5	0.5	14.0
French franc	487.3	152.5	213.6	4.4	87.8 ²	-	-	1.5	27.5
Pound sterling	370.3	225.7	-	0.5	28.0 ²	-	-	9.5	106.6
Canadian dollar	361.7	119.5	-	145.4	48.9 ²	-	-	1.1	46.8
Swiss franc	271.1	8.8	-	11.4	28.3 ²	30.9	16.4	175.3	-
Belgian franc	250.1	140.9	52.0	5.0	10.4	39.5	-	1.9	0.4
Danish krone	212.6	66.5	-	-	9.6	-	131.3	0.2	5.0
Dutch guilder	190.4	121.6	-	0.4	25.9 ²	13.7	3.5	10.1	15.2
Swedish krona	174.7	40.9	-	0.9	10.4	4.6	115.8	0.1	2.0
Australian dollar	122.6	25.8	-	59.5	7.3	-	4.0	0.2	25.8
Spanish peseta	100.0	53.0	5.3	3.6	15.8	3.4	13.3	5.2	0.4
Austrian schilling	87.7	30.6	2.3	0.6	2.9	44.6	-	2.6	4.1
Norwegian krone	49.7	13.1	4.0	5.9	1.7	1.1	23.2	0.2	0.5
Finnish markka	33.3	7.9	-	0.5	6.5	-	16.5	0.2	1.7
Irish pound	23.5	23.3	-	-	-	-	-	-	0.2
Luxembourg franc	12.6	-	-	-	-	-	-	4.3	8.3
New Zealand dollar	11.3	7.8	1.1	-	-	-	-	0.1	2.3
Ecu	117.4	42.8 ³	-	-	-	-	-	-	74.6
Total	13,321.3	4,787.0	2,151.4	1,004.4	1,689.1	1,352.9	865.1	1,471.4	-

¹ All local currency figures are converted at end-1990 exchange rates. ² Includes some issues made by financial sector entities. ³ Includes ecu-denominated CTEs, OATs and Bonos del Estado issued by the Italian, French and Spanish Governments respectively.

Source: BIS (1991).

Table B2
Average residual maturity of bonds*
 In years

	International bonds				Government bonds
	Straight fixed rate	Floating rate notes	Equity-related	Total	
US dollar	6.0	8.5	4.5	6.1	6.0
Swiss franc	5.5	5.4	3.8	5.0	-
Japanese yen	4.8	3.4	4.1	4.8	6.3
Deutsche Mark	5.3	6.9	4.4	5.3	6.8
Pound sterling	9.0	14.5	10.3	11.0	10.2
Ecu	4.1	7.0	5.9	4.3	-
Other	4.0	4.9	6.0	4.1	-
All sectors	5.4	9.0	4.6	5.7	-

* Residual maturity is taken to be equal to the amount of time remaining before a bond's redemption date.

Sources: BIS "International Banking and Financial Market Developments", May 1990, Bank of England (1990), Deutsche Bundesbank, Monthly Statistics, report of the Tokyo Stock Exchange.

Table B3
The foreign and Euro-bond markets

	US dollar		Japanese yen	
	Yankee	Euro	Samurai	Euro
Total outstanding (US\$ billions, end-1989)	72.5	494.4	43.1	87.7
Breakdown (%) by:				
1. Residual maturity				
under 5 years	27	61	42	72
5-10 years	34	24	48	25
over 10 years	39	15	10	3
2. Borrower's home country				
Japan	7	35	*	12
United States	*	21	5	14
Canada	46	4	3	6
Other	47	40	92	68
3. Borrower type				
Public sector	32	13	42	18
Bank	15	24	13	30
Other financial institution	4	10	13	12
Non-financial private sector	34	49	15	26
international institution	15	4	27	14
4. Rate type				
Fixed	96	82	100	95
Floating	4	18	-	5

* Not strictly applicable.

Source: BIS international bond database.

Table C
Stamp duties on bond transactions

Australia	None
Austria	0.05% government bonds 0.075% mortgage bonds 0.125% other bonds
Belgium	0.07-0.35%
Canada	None
Denmark	None
France	Stamp duty levied on transactions not conducted through authorised exchanges Rates: - value of transaction \leq Fr.fr. 1 million: 0.3% - value of transaction $>$ Fr.fr. 1 million: 0.15%
Germany	Domestic corporate and foreign bonds: 0.25% Other domestic bonds (government, mortgage banks): 0.1% Only half the tax is levied on transactions with non-residents No tax is levied on transactions: - between banks and brokers - on public authority book-entry bonds
Italy	Varies according to market participant
Japan	0.03% for transactions between residents
Netherlands	0.12% with a maximum of Fl. 1,200 per transaction
Spain	None
Sweden	Abolished April 1990
Switzerland	Levied on transactions taking place in Switzerland when one of the contractual parties is a domestic securities dealer Stamp duty: - domestic paper securities: 0.075% - foreign securities: 0.15% Cantonal tax: 0.01%
United Kingdom	None
United States	No tax levied by Federal Government

Table D
Exchange control regimes in developed economies since 1970¹

Countries in which most types of capital transaction have been permitted throughout the period since 1970	Countries in which most types of capital transaction were permitted by end-1990		Countries in which significant restrictions were still in force at the end of 1990
		Year of abolition of remaining exchange controls	
Canada Germany Netherlands Switzerland United States	Australia Austria Belgium & Luxembourg Denmark France Ireland Italy New Zealand Sweden United Kingdom	1983 1989 1990 1988 1990 1990 1990 1990 1989 1979	Japan ² Finland Norway Spain ³ Ireland ³ Greece ³ Portugal ³

¹ A more detailed chronology of the measures taken in the G-7 countries since 1979 is to be found in Cooper (1991), Appendix 1. ² Substantial liberalisation during the course of the 1980s. For detailed accounts, see Osugi (1990) and Fukao (1990). ³ According to the capital movements directive adopted by the EC in June 1988, all capital controls are to be abolished in Spain and Ireland by 1992 and in Greece and Portugal by 1995.

Sources: Exchange Arrangements & Exchange Restrictions (IMF), Annual Reports.

Appendix E:
IFR Euro-bond criteria

(1) To qualify, an issue shall be a public offering with customary Euro-market documentation.

(2) Full disclosure of the terms of the issue (in accordance with IPMA recommendation 1.1) shall be made publicly available to the International Financing Review on or before the day of launch. This information must include full coupon/currency/redemption options.

(3) Sole-manager issues where the issuer is a parent, branch or subsidiary of the book-runner do not qualify for inclusion in the IFR's league tables.

(4) A listing on a recognised international stock exchange should have been applied for prior to closing.

(5) The securities shall be eligible for clearing through a recognised clearing system.

(6) Redemption of the securities by prearrangement or option shall not be earlier than 365 days from the closing date.

(7) Repackagings of outstanding bonds shall be excluded.

Appendix F: The BIS international bond database

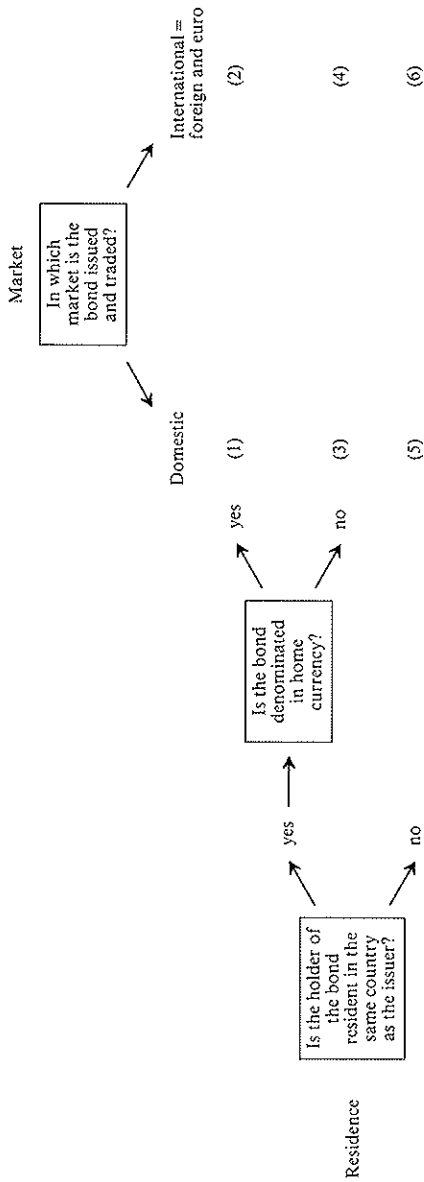
Since the end of 1974 information concerning the development of the international banking market has been provided in the quarterly publication "International Banking and Financial Market Developments" of the BIS. In 1987, reflecting concerns that available information on the international bond market could be improved (see Bank for International Settlements (1986) p. 227), work began at the BIS on an international bond database, reports on which have now been incorporated into the Bank's quarterly publication. The database includes a body of historical data supplied by the OECD and is updated by drawing on two sets of information. The first of these, provided by the Bank of England, contains details of new international bond issues. The second set of information, from the Association of International Bond Dealers (AIBD), provides an exhaustive list of the securities regarded as international bonds by the AIBD, together with details such as the amount of each security still outstanding on a particular date. It is possible, using the BIS database, to analyse borrowing activity in the international bond market according to a large number of alternative criteria.⁷⁷ At present, however, accurate estimates of the market value of outstanding international bonds cannot be made and the best available indications in this respect are figures for nominal outstandings.⁷⁸

⁷⁷ See for example Tables 12-13, B2 and B3.

⁷⁸ The nominal or principal value of a bond is the figure used to calculate coupon and redemption payments. For example, the holder of a Euro-bond with a nominal value of \$1,000, a 10% coupon and a redemption date of 1st January 2000 will receive \$100 per annum until the year 2000 and \$1,000 on the redemption date. The divergence between nominal and market values tends to be greatest on long-dated bonds. For example, in the mid-1970s the market price of UK government bonds with more than 15 years to maturity fell to less than 60% of their nominal value. The market price of shorter-dated bonds has, however, rarely diverged by more than 20% from their nominal value (see Bank of England, 1990).

It is worth emphasising that the term “international” is used in official statistics in slightly different ways with respect to the banking and bond markets. As far as the international banking statistics are concerned, banking transactions between residents of different countries are reported plus foreign currency denominated banking transactions between residents of the same country. The question of residence is not, however, important in determining whether or not a bond is classified as “international”. A UK pension fund’s holding of a bond issued by the German Government in the domestic German market, for instance, would not be classified as an international bond, whereas its holding of a Euro-bond issued by a UK company would be so classified. The term “international”, as far as bond markets are concerned, is simply used to denote the way in which a bond is issued and the market in which it is traded. It might be desirable to use the term “international” in a consistent way, with the collection of international bond statistics placed on a similar conceptual basis to that used for the international banking market. In order to do so, it would be necessary to amend the existing international bond database in three ways: (i) bonds held by agents resident in the same country as the issuer, and denominated in the currency of that country, would have to be excluded, (ii) domestic bonds held by non-residents would have to be included, and (iii) domestic bonds denominated in non-domestic currency would have to be included. Diagram 1 is intended to illustrate the effect of such changes. The first would be very difficult to implement in practice because the large majority of bonds issued in the international markets are bearer instruments and the residence status of the holders of these cannot usually be ascertained. The second amendment is more feasible, because the residence status of most holders of government bonds is known. The principal effect of the third change would be to introduce domestic ecu-denominated bonds into the database.

Diagram The classification of bonds



(1) + (3) + (5) = domestic bond markets.

(2) + (4) + (6) = international bond market, as covered by the BIS database.

If the BIS were to employ the same classification system for bonds as it uses for banking statistics, then international bonds would instead be covered by (3) + (4) + (5) + (6).

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