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THE INTERNATIONAL INTERBANK MARKET

A DESCRIPTIVE STUDY

BANK FOR INTERNATIONAL SETTLEMENTS
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CORRIGENDUM

An error has come to light in Chart 4 on page 31.
Please substitute the attached revised version of Chart 4
for the one printed in the text.

Preface

To enlarge the corpus of knowledge on the international interbank market, a Study Group was set up in 1982 under the auspices of the Bank for International Settlements. The members of the Study Group were:

Chairman:	Mr. D.G. Holland, Bank of England
Belgium:	M. W. Vanleeuw, Banque Nationale de Belgique
France:	M. G. Aubanel, Banque de France
	M. J.-P. Redouin, Banque de France
Germany:	Dr. K. Thomas, Deutsche Bundesbank
Japan:	Mr. S. Yokota, Bank of Japan
	Mr. M. Tanji, Bank of Japan
Luxembourg:	M. A. Philippe, Institut Monétaire Luxembourgeois
Switzerland:	Herr H. Stahel, Schweizerische Nationalbank
United Kingdom:	Mr. D.W. Green, Bank of England
United States:	Mr. R.F. Gemmill, Board of Governors of the Federal Reserve System
BIS:	Dr. K. Spinnler
Secretariat:	Mr. J.S. Alworth, BIS
	Mr. R. Lindley, Bank of England

During the spring and summer of 1982, the members of the Group had a number of discussions with banks operating in this market. The primary focus of this study document is on the state of the market in the first half of 1982, although in the last section mention is made of the difficult conditions the market has subsequently faced and how it is responding to them.

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Summary

Section I provides a brief introduction to how the international interbank market functions. It outlines the form interbank activity takes and how interbank deals are arranged, and discusses the international nature of the market. It also looks at the extent to which the interbank market can be regarded as separate from other markets.

Section II considers more closely why banks use the market. The principal reason is that it provides a ready source of and outlet for funds, enabling banks to operate without the need to match customer loans to customer deposits; in this way, banks have more flexibility in the size and timing of their operations, and can manage their interest rate and exchange rate risks and liquidity more easily. Interbank trading may also be a source of profit (or loss) in its own right. This section also looks at the wide variations in banks' use of the market, and at the extent to which banks channel funds between their different offices.

Section III looks at the volume and pattern of business that results from banks' use of the market. The market may appear to be unexpectedly large but, put in its proper perspective, its size is perhaps not so striking after all; in particular, a substantial portion of recorded interbank activity is between offices of the same bank in different countries. Over the longer run the ratio of interbank to total business has been fairly stable, although there are significant variations, including seasonal ones, which make this less true in the short run. The pattern of business is analysed by currency and location (that is, where the business is booked) and some new data are presented broken down by the nationality of ownership of banks in the market.

Section IV considers the various risks that banks face when using the market and how they cope with them. It looks at how banks analyse the creditworthiness of those they lend to in the market and the differences in the ways banks relate their credit limits for individual banks to their country risk limits. This section also looks

at maturity transformation and liquidity in the market, and discusses the variations different banks have chosen in the balance between interbank and other business. Variations in the way interbank business impinges on the capital of banks are also considered.

Section V turns to the effect the interbank market has on the volume and pattern of lending to non-banks and the difficulty there is in quantifying this effect; in doing so it considers the distinction to be drawn between the decisions banks make about their lending to non-banks, and their decisions about how to fund that lending. Finally, a Postscript looks briefly at how the market has adjusted to changed circumstances in the past, and how it has reacted to the recent period of difficulty.

I
Introduction to the market

The international interbank market is a fast, informal market where banks lend funds to each other. The amounts involved are large, a typical placement being for at least one million dollars (or an equivalent in other currencies) and usually more. Maturities are short, normally between overnight and six months, although placements up to a year and sometimes longer can be arranged. The currency composition of the market reflects that of international banking generally; the great majority of transactions are in US dollars, but for any currency of international importance it is possible to find at least a few banks willing to deal. All transactions are arranged by the banks' dealers over the telephone or by telex, and the deal is completed by a subsequent exchange of confirmations between the banks involved. Although it may take longer for a bank to find a counterparty with whom to deal, the actual transaction will typically take only a few minutes.

The market is a truly international one, and there is a substantial volume of cross-border transactions as well as transactions between banks in the same centre. Banks located throughout the world participate in the market, although it is dominated by the offices of major banks located in the principal financial centres. This is true not only for those offices of the major international banks which are located outside established financial centres but also for banks from, for example, developing countries, whether located in a major financial centre or in their home country. The main criteria for participation are that the bank establishes itself as suitably creditworthy in the eyes of the other banks and that it is not constrained by regulatory obstacles, such as exchange controls or supervisory limits; differentiation between banks of varying creditworthiness is reflected in the size of the credit limits granted and, to some extent, the price the banks can command in the market.

Banks frequently quote both a bid rate (at which they will accept funds) and an offer rate (at which they will lend). The margin between bid and offer is small – usually ⅛ percentage point – although the rates quoted will depend in part on the name of the inquiring bank. The "tiering" against the less-than-prime banks is generally modest, with normally no more than ⅛ or ¼ percentage point separating the best from the worst rate, but may be greater at times when the market is unsettled. Only banks which actively trade both ways in the market can normally expect to raise funds at their bid rate or, likewise, lend at their offer rate. Less frequent users, or those known to be always borrowers or always lenders, will typically have to accept other banks' rates; for example, they will have to borrow at the lending bank's offer rate.

Banks often deal directly with each other. Direct dealing may improve banks' feel for the state of the market and, by developing contacts, lead to closer relationships between market participants. However, brokers, who put lending and borrowing banks in touch with each other, have come to play an increasing rôle as the market has grown. Their importance varies considerably between banks and centres: they account for a majority of deals for most banks in London, considerably less in some continental European centres. Some banks are said to put as much as 90 per cent. of their business through brokers. In countries where brokers are well established, banks look to brokers to provide a swift and efficient means of access to a large number of banks. This can allow both borrowing and lending banks to economise substantially on the information needed to keep abreast of the market and to be linked indirectly with a broader range of potential partners. The use of brokers allows banks to approach the market on their own terms and to operate with a degree of anonymity in the initial stages of dealing. It also could make it easier for banks to avoid publicising the size of their lines to other banks. Brokers may be especially useful for the placement of funds of unusual size or maturity. Some banks consider brokers to be particularly valuable during periods when interest rates are moving quickly and delays in arranging a loan can

consequently be very costly. But others may consider that they have reason to prefer a direct relationship between the supplier and user of funds.

Establishing the precise boundary of the interbank market is difficult. Although most deposit dealing is between banks, the same market mechanism is increasingly used by other participants, such as large corporations, which frequently expect to be able to deal at rates as fine as those achieved by prime banks. This is particularly true when placing funds, but some non-bank borrowers are able to obtain "interbank" terms on their short-term borrowing as well. In addition, not all business between banks is necessarily in the form of interbank placements, some of it being directly related to trade credit and some being similar to longer-term final lending; such positions, although they do not necessarily entail different credit risks, cannot always be properly regarded as interbank both because of the terms at which they are settled and because of the nature of the commitments involved. Nor, indeed, should the international interbank market be regarded as being independent of other markets. On the contrary, rates in the market typically move closely in line with those in domestic money markets, with funds flowing – where exchange controls permit – between the markets. Moreover, most banks are active in domestic as well as international markets, and in many cases no clear division between the two can be drawn. However, there are various features of the international interbank market – for example, its relative freedom from many of the credit controls and reserve requirements often imposed on domestic banking, the wide variety of users and the cross-border nature of much of the business – which give it a distinctive rôle and flavour.

II
The use made of the market

(i) Reasons for using the market

Interbank transactions are a familiar aspect of banking business.

At any moment, some banks may find that they can attract more deposits than they can use, while others may be unable to exploit lending opportunities because of a shortage of funds; so non-bank depositors and end-users can more efficiently be brought together if banks transfer funds between themselves. The need for an interbank market naturally extends to international transactions. Non-bank depositors discriminate between banks for a whole host of reasons, including the location of the bank; and, even in a market as homogeneous as that for international banking services, these reasons are collectively important enough to result in significant differences in the ability of banks to attract deposits. Non-bank borrowers generally discriminate much less – the credit risk of the bank is a less relevant factor – but nonetheless the identity of the lending bank may not be a matter of indifference to them. Banks themselves vary widely: individual banks have individual skills and may be particularly expert in dealing with certain regions, currencies or types of business. All these factors may influence a bank's ability to raise matching volumes of non-bank deposits and loans. Even banks which over a period of time do have a roughly equal volume of non-bank deposits and loans may find that over shorter periods the volume is less well balanced.

As well as making it easier for banks to adjust the volume of their assets and liabilities, the interbank market also permits banks to manage the interest and exchange rate risks which arise from their customer business. In the case of interest rate risk, banks can hedge mismatches resulting from differences in interest rate periods. For example, the interest rate risk that would be created by funding, with a three-month customer deposit, a customer loan carrying a six-month interest rate can be avoided by placing the deposit in the interbank market and funding the loan with six-month funds borrowed from the market. Exchange rate risks, arising from having deposits and loans denominated in different currencies, can be avoided in a similar fashion.

Finally, interbank activity can be a source of profit in its own right. As mentioned above, banks vary in the degree to which they

find this feasible, since not all banks can undertake their interbank business at their own rates and thus profit from the margin between borrowing and placing rates. Some banks may have to accept the rates quoted by others and thus pay the market's offer rate on the funds they borrow, whilst receiving only bid rate on the funds they place; this inevitably restricts the scope for making profits from the margin on pure trading in the market. Nonetheless, any bank is potentially able to make profits by correctly anticipating interest rate movements – for example, by raising three-month funds and placing them for six months when the yield curve is positive and when interest rates subsequently fall. Correspondingly, failure to forecast rates accurately may lead to losses. Thus, rather than use the market to hedge interest rate risk (as suggested in the preceding paragraph), banks may instead deliberately increase it. Profits, in the form of compensation for added risk, can also come by lending to those less-than-prime banks which have to pay a premium over offer rate to raise funds. Interest rate arbitrage, using currency swaps, may be another source of income.

To some extent the use made of the market may have changed over time. The international banking system has always contained a core of interbank transactions in the form of working balances, generally held at "correspondent" banks abroad. As the Euro-market has grown, however, the interbank market has come to play a much larger rôle and, indeed, forms the bulk of international money-market activity. The growth and development of the market need to be seen in the context of the events in the world economy. During the 1970s international banking as a whole grew apace, and banks had to cope with more variable exchange rates and interest rates. The interbank market had an important part to play in this. By making funds available quickly and efficiently to banks which had lending opportunities, no matter where they were located, it enabled the international banking system to adapt much more speedily and smoothly to new demands than would otherwise have been possible. In any circumstances where funds are withdrawn from one part of the system and redeposited elsewhere, the interbank market is a

natural channel whereby the funds can be transferred back to the original part of the system; in this way there is the possibility of avoiding the liquidity difficulties which might otherwise arise from banks' maturity transformation. The market can thus increase the stability of the international banking system. Furthermore, greater variability of exchange rates has led to greater need for forward exchange cover, and swap operations involving the use of the interbank market make the provision of such cover significantly easier. Increased variability of interest rates has also increased banks' potential exposure to interest rate risks, which the interbank market can help to minimise. For all these reasons the international interbank market performs an essential function in facilitating international banking flows and helping individual banks to manage their balance sheets more effectively.

(ii) Variations in banks' use of the market

There are great variations between banks in the use they make of the interbank market. These variations result in part from differences in banks' ability or desire to attract matching volumes of non-bank deposits and loans, and banks form an almost complete spectrum between those which are significant net providers of funds to the market and those which are significant takers.

As well as variations between banks in their net positions, there are considerable variations in the total amount of interbank business undertaken, with no clear correlation between the two. Variations in gross positions are primarily determined by whether a bank attempts to keep its interbank activity down to the bare minimum it feels that its customer business makes necessary or whether it has decided to take a more active rôle, accepting interbank deposits which it will on-lend as interbank placements.

At one extreme, some banks, often because of concern about capital adequacy and return-on-assets guidelines, have made a very deliberate attempt to pare their interbank activity. Interbank trading, it is argued, increases balance sheets but typically provides only small profits, and hence is an obvious candidate for a cutback.

At the other extreme are banks which do not feel that the level of their capital is such as to constrain their interbank activity; they are thus quite happy to accept the modest profits produced by a large volume of actively sought interbank trading and welcome the other benefits, given by added size, for example in terms of prestige, acquiring market contacts, and maintaining bank relationships. In between are a majority of banks which trade in the market to varying degrees depending on the extent to which they see it to be profitable or necessary and the extent to which they feel they have room on their balance sheet. Included amongst these are a number of generally large banks which can be regarded as market makers: these banks do not necessarily always actively seek trading opportunities but generally stand ready to take or provide funds when approached by other banks, even if they have no specific need for such a transaction.

However, it is difficult to take very far a distinction between the rôles played by different banks in the market, since in practice it is not easy to distinguish interbank activity that is pure trading from that which is related to customer business. When a deposit is accepted from a customer, no bank simply places it automatically in the interbank market without taking a host of other factors into account; likewise when funding a customer loan in the interbank market. Dealers are aware of the whole package of loans that might need to be funded over the next few days, and of the deposits that may be withdrawn. Their funding and placement strategy will then be influenced by their view of the likely behaviour of interest rates. If, for example, they expect rates to rise they may attempt to do much of the funding early, perhaps in advance of it being needed. However, if rates are not expected to change they may take a more passive approach, waiting for other banks to approach them rather than actively seeking funds; by doing this they hope to raise the funds at a better rate – their bid rate rather than the other bank's offer rate. Similar strategies are used when placing funds. Inevitably, however, transactions they have expected will sometimes fail to materialise, and funds raised in the interbank market in

anticipation will have to be re-placed in the market – involuntary jobbing, in effect. Equally, the more dealers are confident about the likely movement of rates, the more they are likely to supplement their customer-related business with pure jobbing.

Another factor banks need to take into account is that, to avoid having to pay unfavourable rates, it is necessary to be seen to be on both sides of the market even if the nature of customer business means that the bank would otherwise need to be only a depositor or only a lender. For example, banks which are invariably takers of funds are typically quoted higher bid/offer rates by other banks because the quoting banks know that the bank seeking the price is going to be taking rather than giving funds. For this reason, too, there has to be a degree of reciprocity in the business: it would be unhelpful to be seen to be always taking from one set of banks and always lending to another set. A number of banks seem to have been changing their behaviour so that their activity in the market is now less one-sided. Even banks that are very deliberately reducing their involvement may find that there is a minimum (albeit hard to judge) below which activity cannot be cut back without an adverse effect on their ability to fund themselves.

Conversely, being a market maker does not inevitably involve large amounts of active trading; some banks may find that the scale of their customer-related activity is sufficiently large on both sides of their balance sheets that in general they can continuously quote two-way in the market without their position becoming uncomfortably out of line with their needs.

(iii) Profitability

For some banks interbank income is an important element in their profits, whilst others see their loan activity as the prime source of profit, and any interbank income is more in the nature of a welcome addition. Many banks do not monitor the profitability of their interbank business as such but, rather, look at their money-market business as a whole. However, even calculating the profit on this basis can be a little arbitrary since money-market activities

complement customer business and cannot be readily divorced from it. A common procedure is for the funds passed from the dealers to the loan department to be "priced" at current offer rate; the loan department's allocation of profit thus depends on the spread over offer rate they charge borrowers on their loans, whilst the dealers' profit comes from raising the funds at below the current offer rate (e.g. by raising funds at the current bid rate, or at a time when interest rates generally were lower). Treated in this way it is, however, clear that the profitability of money-market operations is not high, particularly for those banks which are not in any sense market makers, and thus can only raise funds at other banks' offer rates, rather than at their own bid rate. A major factor in determining the return is likely to be banks' success or failure in anticipating interest rate changes.

(iv) Inter-office business

So far this section has looked at pure interbank business, i.e. money-market activity between unrelated banks. However, an important part of the market consists of business between different offices of the same bank – so-called "inter-office" business.

Just as there are variations in the ability or desire of banks to balance their customer liabilities and assets, so there are variations in the ability or desire of individual branches of a bank to achieve this balance. The reasons may lie primarily with the banks' customers. Some customers prefer to place deposits only with head offices or, for various reasons of convenience or perceived safety, prefer the location of some branches to others, whilst borrowers may also be not indifferent to the banks' location. Alternatively, the imbalances may largely reflect decisions by the banks themselves. Some branches, as is discussed below, may be able to raise funds more cheaply than others, whilst for tax, banking regulation, or management reasons banks may prefer to book loans at different branches.

Banks have different approaches to coping with the resulting imbalances of their branches. At one extreme, certain banks treat

their branches in effect as independent units, each expected to undertake its own interbank business, and as a consequence there are negligible flows between the offices. One reason given for this policy is that it is said to be too time-consuming for each branch to attempt to deal only with other offices – it is quicker, and hence frequently more profitable, to use a broker to find another bank with which to deal. Another reason is that by having a number of dealing rooms independently active in the market, the risk of them all taking the same view and hence all being adversely affected by the same unexpected interest rate change is reduced. Some banks may initially fund new branches from another centre but eventually expect them to become independent. Whatever the reason, a policy of independent branches can lead to a certain amount of "froth" in the market, with one branch of a bank placing funds whilst another is taking.

Other banks have a rather greater volume of inter-office business. Some have a policy of getting their branches to try to deal with other branches as a general rule, and to use the interbank market only if by so doing they can obtain a better rate. Some concentrate their interbank business at a few "dealing" branches: in order to keep better control of their interbank business, other branches have to pass their money-market requirements to these dealing branches, which will then in effect enter the market to satisfy these requirements. They may pass positions on to their office in one of the major financial centres because that office is able to obtain funds more cheaply than an office trying to do business out of, say, a less well-known offshore centre; the relative ease with which such offices are able to take up funds appears to be partly due to the web of personal relations which can be established by being physically present in large centres. Banks in Japan, in particular, mention the effect of time zones: their Tokyo offices may, for example, want to deal in London because of the depth of the market there, but to do this they may have to pass their position to their London office because the time overlap is not enough to allow Tokyo always to deal direct with the London market. More generally, banks may

want to maintain a good spread of branches active in the market so that they have a 24-hour dealing capacity; banks may feel they cannot afford to be inactive at a time when the markets may be moving against them, and hence positions are passed from branch to branch rather than being left open overnight. Inter-office business is perhaps most intensively cultivated at those banks attempting to minimise their interbank business. Where such banks have an extensive branch network and the size of their business is considerable, they may be able to deal between their own branches with almost as much flexibility as when dealing in the wider interbank market, and inter-office flows, of course, do not inflate a bank's consolidated balance sheet.

The usual practice appears to be that funds are passed on to other branches at some kind of market rate, although for some banks part of the branches' remuneration for such activity would be the receipt of commission rather than interest. The need to price at around market rate appears to be influenced by the attitude of the tax authorities and by the fact that most branches are independent profit centres and hence reluctant to provide cheap funds even to other offices of their own organisation.

III
A description of the market

The previous section looked at the various reasons why banks use the international interbank market. This section turns to the resulting pattern of market activity, using, in part, the statistics regularly published by the BIS as well as additional information specially collected. It should be stressed that much of the data relates to a single date.

(i) Size of the market

Particularly striking is the volume of interbank activity. Tables 1 and 2 show two different measures of market size. Table 1 looks at

Table 1
Size of the international interbank market: Positions vis-à-vis all banks (end-December 1981)

Type of business	Claims		Liabilities	
	Outstanding interbank claims ($ billions)	As a percentage of total claims[1]	Outstanding interbank liabilities ($ billions)	As a percentage of total liabilities[1]
Positions of banks in the European reporting area, Canada and Japan				
1 Foreign currency within-border . .	243	*64*	257	*84*
2 Foreign currency cross-border . .	684	*73*	677	*65*
Total foreign currency (1+2) . . .	927	*70*	934	*70*
3 Domestic currency cross-border .	93	*54*	73	*55*
Positions of banks in the United States (including IBFs)				
4 Domestic and foreign currency cross-border[2]	176	*69*	127	*72*
Positions of all banks				
Total cross-border domestic currency[3] (3+4)	269	*63*	200	*64*
Total cross-border (2+3+4)	953	*70*	877	*65*

Definition of interbank: Excludes positions vis-à-vis official monetary authorities. Also excludes trustee funds (estimated) placed in the market by banks in Switzerland and certificates of deposit (CDs) held by banks on behalf of non-bank customers.
[1] For that particular type of business. [2] Almost wholly in domestic currency (i.e. US dollars). [3] Assumes the positions of banks in the United States (line 4) are entirely in domestic currency.
Source: BIS.

all interbank positions of banks in the reporting area and shows that about 70 per cent. of their foreign currency assets and liabilities are accounted for by lending between banks.

It is interesting to compare this figure for foreign currency business with that for the external domestic currency of the same banks (Table 1). In the case of banks in Europe, Canada and Japan, the ratio of interbank to total cross-border positions in domestic currency is small (about 55 per cent.) in comparison with the foreign currency ratio. This is probably attributable to the fact that cross-border domestic currency business with non-banks can be supported not just by cross-border interbank business but by business in the relatively large domestic interbank markets (outside the scope of

this study) and by using other domestic sources of funds. It may also be due to regulations which limit the international rôle of many currencies and which commonly take the form of restrictions on cross-border domestic currency interbank lending. On the other hand, the ratio of interbank to total cross-border positions (almost entirely in domestic currency) for banks in the United States is much larger (around 70 per cent.) – i.e. rather closer to the order of magnitude for foreign currency business elsewhere. This US business is naturally boosted by the dollar being the major international currency and by there being no restrictions on external interbank depositing by banks in the United States; the international interbank market thus offers an alternative to the domestic markets. A substantial part of this cross-border business with banks in the US consists of inter-office business (see page 28).

Table 2 takes a more restricted view of the market and looks just at those positions of reporting area banks which are with banks in major financial centres (so-called "inside-area" banks). This view is a rough attempt to measure the "hard core" of the interbank market, on the grounds that positions with banks outside the major financial centres (e.g. with banks in Eastern Europe and Latin America) are rather more closely linked to lending to final borrowers and are likely to be determined by rather different factors. On the basis of looking at "inside-area" positions only, the interbank market appears to account for a slightly smaller proportion – roughly 60 per cent. – of total foreign currency business. The contrast (for banks in Europe, Canada and Japan) with external domestic currency business, where interbank accounts for only about 35 to 40 per cent., is more marked on this narrower basis.

(ii) Interpreting the size of the market

It is important to put the size of the market in context. The measures above are not measures of pure interbank activity for two reasons. One is that, as well as short-term money-market transactions between banks, they also include transactions, such as a

Table 2
Size of the international interbank market: Positions vis-à-vis inside-area banks[1] only
(end-December 1981)

Type of business	Claims		Liabilities	
	Outstanding interbank claims ($ billions)	As a percentage of total claims[2]	Outstanding interbank liabilities ($ billions)	As a percentage of total liabilities[2]
Positions of banks in the European reporting area, Canada and Japan				
1 Foreign currency within-border . .	243	*64*	257	*84*
2 Foreign currency cross-border . .	553	*59*	559	*54*
Total foreign currency (1+2) . . .	796	*60*	816	*61*
3 Domestic currency cross-border .	59	*34*	56	*42*
Positions of banks in the United States (including IBFs)				
4 Domestic and foreign currency cross-border[3]	137	*53*	118	*66*
Positions of all banks				
Total cross-border domestic currency[4] (3+4)	196	*46*	174	*56*
Total cross-border (2+3+4)	749	*55*	733	*54*

Definition of interbank: see Table 1.
[1] Banks in the European reporting area, Canada, Japan, United States, Singapore and the Caribbean. [2] For that particular type of business. [3] Almost wholly in domestic currency (i.e. US dollars). [4] Assumes the positions of banks in the United States (line 4) are entirely in domestic currency.

credit granted by one bank to another, which are not arranged in the interbank market. Although these transactions have some of the characteristics of pure interbank transactions (for example in terms of their credit risk) they are not fulfilling money-market functions and in some respects have more the nature of final lending. For example, they are likely to be arranged in a different part of the bank (i.e. not by the bank's dealers) and accompanied by more substantial documentation.

Perhaps more important is that the measures of cross-border business include inter-office positions as well as genuine interbank activity; when they are between offices located in different countries, these positions are caught, indistinguishably, in the statistics published by the BIS. However, estimates, together with some published data (e.g. for banks in the United States and the

United Kingdom), indicate that they are a very important component of cross-border interbank business, accounting for an estimated 38 per cent. of reported interbank claims and 41 per cent. of liabilities. Thus, netting these positions out of the figures (both total and interbank) for the size of the market suggests that, rather than approximately 70 per cent., genuine interbank business accounts for less, perhaps significantly less, than two-thirds of total international interbank business (including foreign currency business with residents as well as cross-border business). Where relevant in the rest of this section, interbank business including inter-office positions will be referred to as broad interbank business, whilst that excluding such positions will be referred to as narrow interbank business.

It is interesting to consider what an interbank market of this size implies for the number of banks involved in intermediating funds between non-bank borrowers and lenders. Banks do not hypothecate individual deposits against individual loans and thus it is not helpful to seek to trace the passage of a deposit through the banking system. However, the proportion of interbank business in the balance sheet of the international banking system indicates through how many banks, on average, total non-bank funds pass before being lent to non-banks. If that proportion is one-half, this implies that on average only two banks (and thus one genuine interbank transaction) were involved in intermediating the flow of funds from non-bank depositors to non-bank lenders; even if interbank business accounted for two-thirds of the balance sheet the implication would be that, on average, only three banks (and two interbank transactions) were involved.

It should also be noted that non-bank transactions which may give rise to interbank deals do not always appear on the balance sheet, thus leading to an overestimation of the magnitude of interbank relative to non-bank activity. For example, a forward foreign exchange sale to a non-bank customer does not appear on a bank's balance sheet and thus does not appear in the statistics. However, the resulting lending and borrowing – probably in the

interbank market – that the bank may do to offset the risk arising from this forward sale does appear on the balance sheet and thus is included in the statistics.

Finally, in all markets there is an important rôle for those who are willing to act as market makers by dealing actively and regularly, smoothing out price aberrations and making it easier for surplus and deficit banks to be brought together. Indeed, as already mentioned in Section II, even banks which do not regard themselves as market makers frequently take positions on both sides of the market to maintain a trading presence, and there is an element of reciprocity in both the placing of deposits and the setting of credit limits. Banks may thus find it convenient to engage in a certain volume of interbank business that is not directly related to their customer needs, and again this will inflate the ratio of interbank to total business.

(iii) Behaviour of the market over time

The ratio of the stock of broad interbank to total (i.e. including non-bank) positions has been reasonably stable over time, as the second column of Table 3 shows (allowing for the break in series between 1977 and 1978). Table 3 also shows the broad interbank to total ratio for the changes in business over each year. This shows slightly less stability (with the ratio varying from 63 per cent. to around 78 per cent.), but the range is still quite narrow and, moreover, has not been persistently above or below the stock share; the growth in business over the years has thus had little effect on the stock share.

However, the broad market is characterised by fairly marked seasonal variability. This is largely because of the use of the market for "window-dressing", especially, though not exclusively, in the last quarter of each year. This is shown very clearly in Chart 1, which depicts the quarterly changes in claims on inside-area banks, outside-area banks and non-banks. Although the claims on outside-area banks and non-banks show some seasonal variations, these are

Table 3
External interbank claims, 1975–81
Domestic and foreign currency claims on all banks, reported by banks in Europe, Canada and Japan

End of period	Outstanding interbank claims		Adjusted[1] changes in interbank claims over previous year	
	Amounts ($ billions)	As a percentage of total outstanding claims	Amounts ($ billions)	As a percentage of change in total claims
1975	246	*74*		
1976	286	*73*	35	*67*
1977[2]	342	*72*	42	*67*
1978	458	*69*	84	*66*
1979	596	*70*	130	*78*
1980	705	*70*	130	*69*
1981	777[3]	*70*	100	*63*

Definition of interbank: see Table 1.
[1] Adjusted to exclude exchange rate effects of movements in non-dollar currencies against the US dollar. [2] Major break in series after this period. Figures before and after the break are not strictly comparable. At end-December 1977 outstanding interbank claims for the new series were equal to $352 billion. [3] Cf. Table 1: $684 billion (foreign currency cross-border) plus $93 billion (domestic currency cross-border).
Source: BIS.

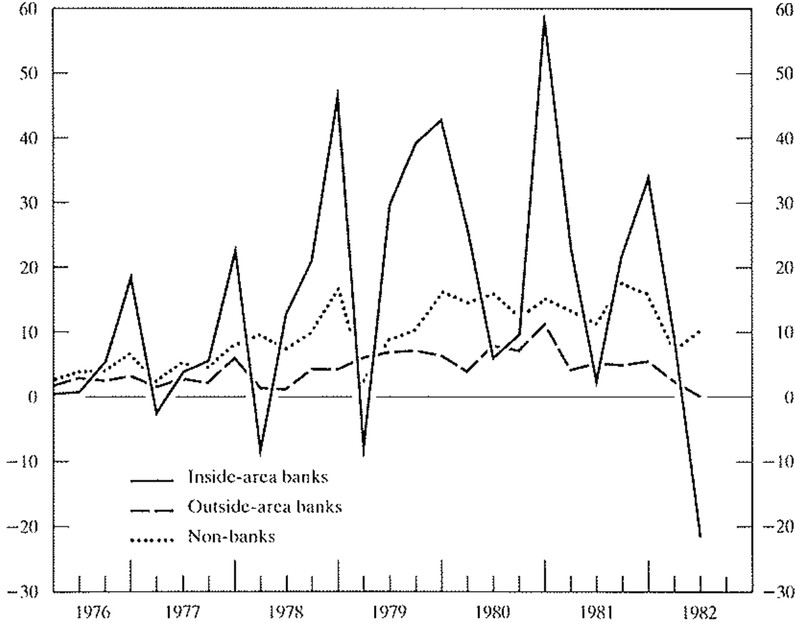
by no means as pronounced as those of the claims on inside-area banks.

Chart 1 also suggests that the broad interbank market grew in the second half of 1981 and fell back during the first half of 1982 in the now normal pattern, but that the magnitude of the movements was rather different, with a relatively small rise in 1981 and a steeper-than-usual fall in 1982. There are also indications that the recovery in the second half of 1982 may have been weaker than usual. However, the statistical evidence is as yet too weak to indicate whether this presages a change in the trend growth of the market or whether it is a temporary phenomenon. For comparison, it is estimated that in the period following the Herstatt crisis there was an absolute contraction of the broad market of the order of 4 per cent. after mid-1974 and that the revival of the market during the successive quarters was slow.

Chart 1

Cross-border claims of reporting banks[1] on non-banks, inside-area banks and outside-area banks: quarterly changes[2] in outstanding position, from 1976 Q1 to 1982 Q2

in billions of US dollars



[1] Only Europe, Canada and Japan. [2] The figures employed are estimates adjusted for exchange rate movements. In order to compute these changes, the banks' non-dollar positions at the beginning of each period have been revalued at the exchange rate prevailing at the end of the period.

(iv) Maturities and currencies

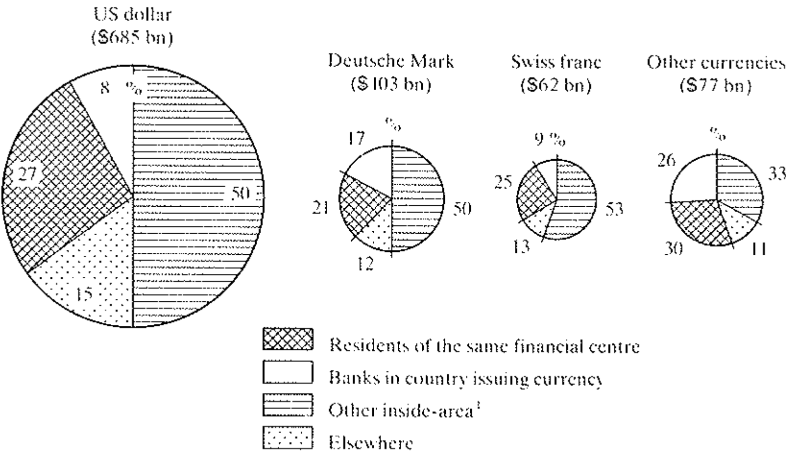
Interbank placements of six months or less are the norm and the maximum maturity tends to be one year, although in the major financial centres longer maturities, always priced at a fixed rate, are to be found. Lending to banks at a maturity exceeding one year is more likely to be treated as an advance, subject to a more comprehensive credit assessment, than as an interbank placement.

What banks come to regard as the normal maximum maturity for interbank placements may also depend on supervisory practices; in some instances, capital and liquidity ratios differ according to maturity, with different weighting being given to positions of longer term. Interbank deposits of longer maturity appear to have become less common in recent years.

The currency composition of the broad market (Chart 2) reflects that of international banking generally, and thus for all currencies the ratio of broad interbank to total business (Table 4) seems roughly comparable (with perhaps the Deutsche Mark and Dutch guilder being used proportionately more for final lending). The US dollar is by far the most widely used currency in the interbank market (74 per cent.). Its use varies considerably from around 75 per cent. in the London market to 35 per cent. in the market in Luxembourg.

Chart 2

Currency composition of foreign currency claims in the interbank market (end-December 1981)



Definition of interbank: see Table 1   Coverage: banks in Europe, Canada and Japan.
[1] See footnote 4, Table 2   Source: BIS

Despite the dominance of the major currencies, for any currency of some international importance there will always be at least a few banks – often originating in the country of the currency – which are prepared to deal in such deposits. Concentrated activity in non-dollar currencies tends to be found only in specific segments of the market. For instance, banks in Luxembourg trade very actively in Deutsche Mark; similarly, Japanese banks in London have significant positions with one another in yen. The extent to which claims are held on banks in the home country of the currency varies considerably (Table 4). For example, only a small proportion (8–9 per cent.) of claims in US dollars and Swiss francs are held with banks in the United States and in Switzerland respectively, while 17 per cent. of Deutsche Mark interbank positions are with banks in Germany. (For banks in Luxembourg, this proportion – of Deutsche Mark claims on Germany – is more than 30 per cent.) Typically, a greater proportion of total broad interbank claims is held on the issuing country in the case of other currencies such as sterling and guilders. This can in part be attributed to the smaller international rôle of these currencies, whilst they are of relatively greater importance in bilateral trade with the country of issue.

Table 4
Currency composition of interbank claims and total claims, end-December 1981

Currency	Interbank claims as a percentage of total claims	Claims on banks in country issuing currency as a percentage of total interbank claims
US dollars	*71*	*8*
Deutsche Mark	*65*	*17*
Swiss francs	*71*	*9*
All other currencies	*73*	*26*
of which:		
pounds sterling	*76*	*43*
French francs	*72*	*16*
yen	*79*	*20*
Dutch guilders	*62*	*34*

Definition of interbank: see Table 1. Coverage: banks in Europe, Canada and Japan.
Source: BIS.

If a bank is unable to find an outlet for a transaction in a particular currency it often employs an exchange-market "swap". A swap transaction is a simultaneous purchase and sale of a currency for two different value dates. This generally takes the form of a coupling of a spot and a forward transaction, although two different forward dates can be used as well. In this manner an efficient mechanism connecting the various currency markets is created providing the means whereby a bank can, for example, temporarily obtain dollars on the basis of a non-dollar deposit, and vice versa, without incurring any exchange rate risk. While swaps are common to all centres, their relative importance tends to be greater for banks located in the minor centres, where they may, in effect, create the market for smaller currencies.

(v) The location of business

The pattern of business in the market is complex. When arranging a transaction, dealers are principally concerned with the price or timing of their deal and, as long as they remain within their limits, the identity and location of prime counterparty banks in major financial centres are likely to be of secondary importance. For example, a bank in London is unlikely to be greatly concerned whether it lends to another bank in London or to one of similar standing in Paris. As a result, the volume of cross-border transactions amongst the major financial centres as well as the offshore centres is large. This international nature of the market is facilitated by the activities of brokers who have international networks and are readily able to put banks on opposite sides of the world in contact with each other.

Chart 3 shows the pattern of external interbank business in some major financial centres at end-1981. Looking at the narrow market, banks in the United Kingdom have a central rôle in the portfolios of banks located in other reporting countries both as suppliers and takers of funds and, overall, have virtually a balanced position with banks in other centres. Banks in Japan and Germany also have a roughly balanced position. Banks in the United States appear as

significant net suppliers of interbank funds to other banks, whilst banks in Belgium, France and Luxembourg are net takers of funds.

Chart 3 also illustrates that there is a wide variation in the proportion of cross-border interbank business in the various centres which is inter-office. Inter-office business varies from 10 per cent. of total claims of banks in Luxembourg to 74 per cent. of total liabilities of banks in Japan. Centres again differ according to whether they are net suppliers (notably the United Kingdom) or net takers (particularly Japan) of funds vis-à-vis own offices. Although a precise geographical breakdown of the inter-office positions of these banks is not available, it is likely that these net positions of banks in the United Kingdom and Japan reflect, at least in part, the behaviour of Japanese banks raising interbank funds in the United Kingdom and lending them to their offices in Japan. For banks in the United States (where a geographical breakdown is available), inter-office business accounts for over half of all interbank claims, and for their business with offshore centres in the Caribbean this proportion rises to more than 80 per cent. Overall, banks in the United States show an almost zero net position with related offices but there are notable differences amongst centres, with large net inter-office liabilities with banks in the United Kingdom and net inter-office claims on banks in Japan.

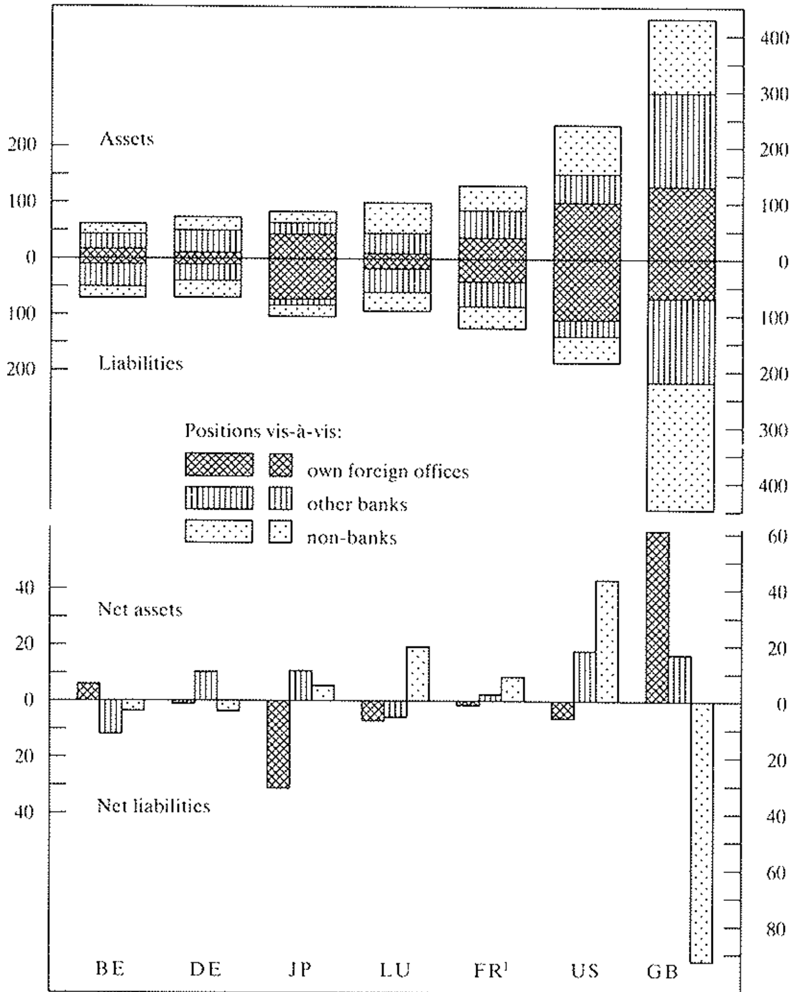
Overall, broad interbank claims on the inside area are over three-quarters of total external interbank claims. (This breakdown is not shown in Chart 3.) However, this proportion differs amongst banks located in various centres. Banks in the United States lend more than the average to inside-area banks whilst banks in Germany have relatively large claims on outside-area banks. Claims on banks in offshore centres are a quarter of all claims on inside-area banks. As a result of large inter-office lending with "shell" branches, these positions are particularly important for US banks, although in relative terms these claims are also sizable for banks in Canada and Japan. For the latter, more than half of interbank claims on offshore centres are with Singapore.

In addition to cross-border interbank activity there is

Chart 3

External assets and liabilities of reporting banks (end-December 1981)

in billions of US dollars



Definition of interbank: see Table 1.

[1] At end-September 1981.

Source: BIS and central banks.

considerable business in foreign currencies between banks located in the same centre. This business, not shown in Chart 3, is particularly substantial in the United Kingdom where outstanding claims and liabilities at end-1981 were over $130 billion. There are also significant positions between banks in Japan ($38 billion), France ($28 billion), Luxembourg ($13 billion) and Belgium ($10 billion).

(vi) Nationality of banks

Data on the positions of banks classified by the nationality of ownership of the bank, rather than by location of office, are not regularly collected by the BIS. However, some estimates on this basis, both of interbank and total activity, are shown in Chart 4 below. It should be stressed that these data are incomplete; they are estimates only of the business of banks' offices located in reporting countries, and a different picture might well result from data covering the banks' offices worldwide. Moreover, they represent positions at a single date (end-1981); this may be particularly relevant when interpreting the net positions, which, as a relatively small difference between two large figures (i.e. gross interbank claims and liabilities), are likely to be quite volatile. It should further be noted that, although the interbank positions shown here exclude cross-border inter-office business where identifiable (i.e. they are narrow interbank positions), inter-office data are incomplete, and thus gross narrow interbank positions will tend to be overestimated.

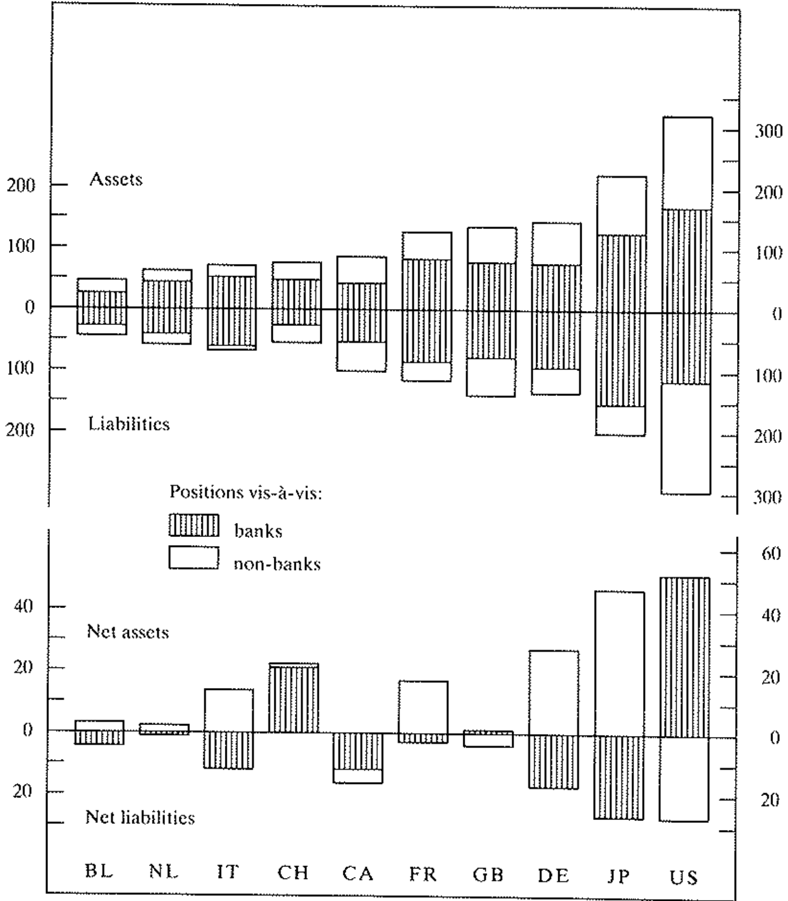
The pattern of activity by nationality of bank is, not surprisingly, quite different from that by location of bank (Section (v) above) since most banks active in international business have offices in a variety of centres. The difference is perhaps most noticeable for Japanese banks (which have particularly significant operations outside Japan) and British banks (which form only a part of the large London market).

The chart shows the significant rôle of American and Swiss banks as net suppliers of funds to the market (as measured here) and the rôle of the Japanese, German, Italian and Canadian banks as net takers. The rôle of Swiss banks as suppliers of funds is

Chart 4

International assets and liabilities of reporting banks by nationality[1]

in billions of US dollars



[1] This chart covers the cross-border business (in domestic and foreign currencies), plus the foreign currency business with residents, of banks offices located in Group of Ten countries and Switzerland, as well as the cross-border business of US banks' branches in offshore centres reported to the BIS at end-1981. The business of consortium banks is, in principle, excluded.

underemphasised since the chart does not include their placement of trustee funds in the market (although these are reported as interbank deposits by the banks borrowing the funds). The foreign offices of German banks tend to be net takers of funds in part because of minimum reserve requirements levied on banks' liabilities in Germany.

Although these net interbank positions are in some cases substantial, they are quite modest overall in comparison with the gross positions. As the chart shows, narrow interbank activity forms a substantial proportion of both sides of all nationalities' balance sheets. The variations in this proportion are interesting but should be treated with particular caution since these differences will in some degree be influenced by the incomplete reporting of inter-office data. Overall for each nationality (taking assets and liabilities together), interbank business varies from 55 to 80 per cent. of total business, with the highest proportionate use apparently being made by Italian, Japanese, Dutch and French banks, whilst Canadian and US banks are amongst those which make the lowest proportionate use. For many groups there is a significant difference between the interbank share of assets and that of liabilities, partly reflecting whether banks are net suppliers or takers of interbank funds. Again, however, care should be taken in interpreting these shares: for most bank groups, total liabilities reported here are different from total assets (in principle reflecting domestic currency funds used for international business or vice versa).

IV
Risk in the market

(i) Assessing bank risk

Before it lends to a potential borrower in the market, a bank assesses the proposed counterparty and establishes a line for it. Any bank can borrow funds in the market provided that it can convince other banks of its creditworthiness. It is not uncommon for major

banks to have lines for a large number of banks on a worldwide basis, although, at any given time, they will have provided funds to a rather smaller number. The line specifies the maximum amount the lending bank is willing to have outstanding to the borrower at any one time, and perhaps also the maximum maturity. The line is usually "unadvised" (i.e. the borrowing bank is not told how large its line is) and "uncommitted" (in that the lender is under no obligation to provide any funds). Assessing creditworthiness and establishing lines in advance in this way allows individual deals in the market to be arranged speedily and informally. Moreover, the fact that the bank is not formally committed obviates the danger that the bank will be legally bound to provide funds on request. Most banks set limits on the basis of their "gross" exposure, although some banks reportedly base the limits on their "net" exposure at particular maturities. Limits are generally set by management and are subject to periodic review, at least annually in the case of most banks. Specific limits are sometimes, accidentally or with management consent, temporarily exceeded.

The greater risk of lending to some banks may be reflected in a premium which they pay as well as in the size of the lines granted to them. Although estimates vary widely, these premiums are typically modest, with most banks in normal circumstances paying no more than perhaps 1/16 to 1/4 per cent. The premiums are not imposed externally but determined by the interplay of market forces; which banks are charged extra, and by how much, varies over time.

There is no generally accepted manner of assessing the creditworthiness of other banks. In a number of banks, credit assessment can be somewhat rudimentary, particularly with respect to the larger banks in the market. It is not uncommon for banks to be willing virtually without question to provide lines to the largest 100 to 300 banks. Otherwise, the published accounts of the banks – and, in particular, data on capital ratios – are the main, albeit limited, source of objective information employed. In addition, a variety of other more or less concrete factors often influence, in some measure, banks' assessments. These include the general

reputation of the bank, the perceived quality of management, the degree of personal contact with the bank, and the day-to-day information provided by dealing in the market. The perception of a bank's importance in the financial system of its home country, the degree of supervision which is believed to take place in the centre, and whether or not the borrowing bank is nationalised also tend to be taken into account.

However, banks frequently deal with a large number of counterparties in the market, and many may not be fully aware of the management structures, balance sheets or the nature of the business of banks with which they deal in the interbank market. While some banks make a point of maintaining personal contacts with the management of banks with which they deal, and may seek to discuss their lending policies, many others feel that it is not possible for an individual bank to keep up to date on developments in the large number of banks to which they lend. In addition, there appears to be a feeling that, in a competitive environment, there are limits to the amount of information which can be made available.

Indeed, in general, interbank business tends to be viewed automatically by banks as a relatively good risk, particularly where prime banks are concerned. The majority of banks have a wide spread of loans in their portfolio; a bank lending to them is in some sense sharing in this portfolio, the diversification of which reduces the risk involved. The capital of the borrowing bank further protects the lender from defaults on that portfolio; and banks typically diversify their interbank lending by dealing with a large number of banks, thus limiting their exposure to individual banks and minimising their overall interbank risk. In this way, the risk that the failure of one bank could lead to the failure of others, through default on interbank debt, is minimised and the stability of the market improved.

However, it may be less appropriate to regard interbank lending to all banks as being of the same low risk. Not all banks have well diversified portfolios, and not all banks are well managed. There are also variations in the supervision banks receive – not all banks are

yet supervised on a consolidated basis. Although these differences can be important, banks' monitoring procedures may not always make adequate distinction between the riskiness of lending to different banks in the market.

(ii) Bank limits and country risk

Banks have a wide variety of views on the appropriate way of linking bank limits to country limits. At one extreme, several banks appear to look only at country risk on the basis of the location of an office of a bank. For example, a bank might give a line to the London branch of a bank but not the head office in, say, Latin America. At the other extreme, some banks look only at country risk on the basis of the bank's nationality, e.g. lending to a British bank would be treated as a UK risk irrespective of where the branch was located. Indeed, some of these banks may find it cumbersome to identify from their records the location of a borrowing bank; on occasion, banks may even not be told in advance at which branch the placement would be booked. In between the extremes, a majority of banks appear to allocate the risk primarily by nationality of ownership but also make some allowance for location. Often this allowance is informal. For example, branches located outside major financial centres may be treated with caution; one procedure used in such cases is to refer to the head office of the bank concerned to ask why that particular branch needed funds.

There are indeed theoretical difficulties in allocating risk, and therefore it is not simple or necessarily possible to set up a rigid system that is perfect. There are also practical difficulties. Dealers need quick decisions and this restricts the complexity of the limit system that can be operated. Nowadays, however, technology is becoming sufficiently advanced for it to be possible to overcome this obstacle, and indeed a number of banks are in the process of revising their limit systems or introducing new technology.

(iii) Maturity transformation and liquidity

The interbank market in general reduces risk by bringing all

banks (and, indirectly, their customers) together and increasing the likelihood that customers' requirements with regard to amounts, currencies, maturities, and interest rate periods can be met without banks taking on undesired mismatches. Some banks use the interbank market to create a cushion of liquidity – borrowing long and lending short to create liquid assets which can be used as a safety net in the event of a loss or an unanticipated outflow of funds. Even banks which have a less formal policy may regard interbank lending as a convenient liquid asset. Of course, the usefulness of this interbank liquidity needs to be kept in perspective. When banks place short-term deposits with one another, this does not improve the liquidity of the banking system as a whole. But in the common circumstance where a need for liquidity is felt in parts of the system, but not elsewhere, interbank liquidity can be valuable. Indeed, an element of reciprocity involving both taking and placing funds with the same bank is seen by the market as beneficial because it helps cement a firmer relationship and increases the likelihood that each bank will be willing to continue to support the other in times of difficulty. Nevertheless, it would of course be inappropriate for banks to regard interbank assets as being as liquid as – for example – claims on monetary authorities, who have the power to create liquidity in their own currency; and all assets, whether interbank or not, are always at risk of being less liquid than expected in a crisis.

As well as using the market to hedge their risk or create a cushion of liquidity, banks will on occasion desire to create mismatches so as, for example, not to turn down profitable lending opportunities or in order to anticipate changes in interest or exchange rates. The interbank market may make it easier to undertake such activity beyond a level which is prudent and this may be particularly true for the funding risk which is inherent in maturity transformation. However, individual deposits are not, of course, hypothecated against individual loans, and thus it is not particularly helpful in this context to look at the maturity transformation implied by interbank positions alone. Rather, maturity transformation is best looked at from the point of view of a bank's balance sheet as a

whole – interbank and other transactions. Individual banks try to avoid undertaking maturity transformation which is excessive relative to their capital; they also have an evident interest in looking at the maturity transformation undertaken by those banks they lend to, and perhaps also those they have borrowed from, as part of their routine credit assessment of their interbank customers. And to the extent that the behaviour of each bank individually is prudent in this respect, then the maturity transformation in the system as a whole should not be imprudent.

(iv) The balance between interbank and other business

Discussion about risk in the market is frequently overshadowed by a feeling that the market is larger than it needs to be. Could not the benefits of the market be retained, but the risks reduced, if banks used the market less? The size of the market has already been discussed in Section III, where it was suggested that, if the data are interpreted correctly, the market may not appear in any sense abnormally large. Indeed, perhaps the most important point is that the extent to which it is prudent for an individual bank to make use of the interbank market depends crucially on the adequacy of the credit assessment and monitoring systems the bank uses, and the adequacy of its capital and liquidity; there is nothing inherent in the nature of interbank business which means that it should not exceed a certain proportion of a bank's assets or liabilities.

Nonetheless, the availability of a ready source of funds in the interbank market has made it possible for some banks to expand their balance sheets substantially and to undertake lending in foreign currencies without ever needing to establish customer relationships with depositors in those currencies. Indeed, banks otherwise without any major involvement in international business have often sought and found access to international banking through the interbank market. Although this use of the interbank market is convenient for enabling new banks to establish contacts and develop their business, it could be that it may be less suitable as a primary source of funds in the longer term. In particular, the fact that, in normal

circumstances, funds flow responsively to changes in interest rates could possibly lead some banks to underestimate the difficulties which could arise at times when the market as a whole is under stress. To the extent that interbank deposits were more volatile than non-bank deposits (non-bank depositors may, for example, be more committed to the bank by factors such as location, tradition or the provision of other services), banks which are mainly dependent on interbank deposits might be more susceptible to sudden shifts in market sentiment than banks which have a solid core of non-bank deposits. However, too much should not be made of this argument because it is not clear that interbank deposits are necessarily more volatile than non-bank deposits. Non-banks may also be heavily influenced by factors other than inertia or loyalty to particular banks, whilst many banks themselves attempt to develop relationships in the market in order to increase the stability of their interbank deposits. Given this ambiguity, the prudent course is for banks to monitor and assess the stability of all their deposits with a view to establishing, to the best of their ability, their real degree of liquidity.

(v) Banks' capital and the interbank market

The various risks encountered by banks in using the interbank market do not pose problems fundamentally different from those encountered in their non-bank lending, and thus banks need to make adequate liquidity and capital available to support interbank lending in just the same way as they do for non-bank lending. In practice, there are differences in the capital ratios observed by banks, with some banks, or groups of banks of particular nationalities, operating with considerably larger capital ratios than others. To some extent these differences may arise from general differences, affecting both interbank and other business, in management policies or in the views of supervisory authorities. In part, the differences are specific to interbank transactions. One aspect of this is the attitude, discussed earlier, some banks have towards risk in the market. Another may be a reaction to the

perceived attitude of supervisors, some of whom require considerably less capital to be provided against interbank transactions than against other business. Indeed, the capital required against interbank assets varies widely. Strict comparisons between countries are difficult, since there are many differences in the definition of the various items in balance sheets and in the institutions to which these ratios apply. Nonetheless, some rough indication of the possible extent of the variation can be seen from the fact that the French authorities impose a 0.25 per cent. requirement, whilst the Swiss impose one of 6 per cent. There are also significant differences in the extent to which interbank assets are distinguished from other assets. On the one hand, the Japanese authorities have an overall capital/deposit requirement and thus, de facto, make no distinction between interbank and other assets. Other authorities more typically require less capital to be provided against interbank than against non-bank assets, on the assumption that interbank assets are less risky; in this respect, the difference is very significant in France. Some authorities – for example, those in Germany and the United Kingdom – differentiate between lending to resident banks and those overseas, whilst in some cases – for example, in Switzerland and the United Kingdom – capital adequacy guidelines vary with the maturity of the interbank asset.

(vi) Changes in the use of the market

For some time there have been signs of change in the market. To a degree these are reflections of a longer-term reappraisal of strategy by banks' managements. Some banks, for example, have been increasingly concerned with their return on total assets; interbank transactions – which are generally of low profitability – have for them been an obvious candidate for reduction. Other banks have become concerned about the effect that a growing volume of business generally is having on their capital adequacy; again, because interbank activity expands balance sheets with relatively unprofitable business, they may feel that a reduction in the volume of such activity is a sensible way to cut back on balance-sheet

growth. More recently, change has become more general and perhaps reflects a reassessment of the risk of interbank lending rather than simply a desire to cut back on a less profitable part of banks' books.

There is a possibility that these changes could, at least in the short run, perversely increase banks' exposure to risk. The pressures on banks may be acting two ways: whilst many banks, for the reasons discussed above, feel under pressure to reduce their interbank business, there are other reasons which may make it difficult for them to cut back. Volatility in interest rates makes it important to manage mismatches carefully, and although a reduction in interbank lending would make a simple capital/assets ratio appear healthier (by reducing the volume of the bank's assets) it may significantly increase the interest rate mismatch risk attached to the remaining book. Much depends on how banks would react if they reduced their interbank trading. It is possible that they would seek alternative means, such as interest rate futures, of reducing mismatch risk. As long as the mere fact that these transactions are off balance sheet does not have the consequence that inadequate capitalisation is disguised, futures, appropriately used, could indeed provide a sensible, albeit partial, substitute for interbank transactions. Particularly since the opening of the London market in 1982, interest rate futures have been used by many banks, although as yet there is little evidence that they are likely to have any major impact on the overall volume of interbank activity.

V
The effect of the market on lending to non-banks

The usefulness of the interbank market has already been discussed in Section II. Because it provides banks with a convenient source of and outlet for funds, the market has enabled a greater number of banks to operate in international banking and to make fuller use of their capital than would otherwise be possible. The market has thus almost certainly permitted a greater volume of

business with non-banks to be undertaken than would otherwise have been the case.

The expansion of the range of banks undertaking international lending will also have affected the distribution of final lending: those banks which have been able to expand more than they could have done in the absence of the interbank market may direct their lending in ways different from other banks and may, in particular, be highly specialised. Their access to the interbank market may therefore give rise to a pattern of non-bank exposures different from that which would otherwise exist. For example, the market has made it easier for banks which specialise in lending to particular countries or sectors to fund themselves and thus undertake such lending.

The market may also affect the nature of lending by making it easier to fund particular kinds of instruments. It has been suggested, for example, that medium-term rollover credits could not have flourished without the interbank market, and it is certainly true that the availability of interbank deposits is virtually a prerequisite for banks to be able to fund such credits without incurring the unwanted interest rate mismatches which would probably arise if only non-bank deposits were available. Indeed, it would be more correct to say that a whole range of lending activity has been greatly facilitated by the interbank market: interbank business is supportive of all kinds of lending activity except for those relatively rare instances where the size, maturity and timing of a loan to a non-bank can be matched exactly to that of a customer deposit. The same is true in domestic banking; though there, in some cases, the availability of a stable customer-based supply of demand deposits may partly substitute for money-market dealings in providing the necessary funding flexibility.

However, it is difficult to make even a rough estimate of the extent to which the interbank market has led to a different volume and pattern of business with non-banks. Even looking just at the overall volume of business, the evidence is inconclusive. As already mentioned in Section III, there has over time been a relatively stable ratio between the stock of interbank assets and the stock of non-

bank assets; but over short periods there is little systematic relationship between changes in interbank and non-bank business. It is therefore not clear what effect a marginal change in the volume of interbank business would have. Even less evidence is available about the market's effect on the distribution of lending or the types of instrument.

Whatever its strength in practice, the relationship between interbank and non-bank activity should not be seen as a mechanistic one. There is no automatic link between changes in one sort of activity and changes in the other. To some extent a bank's view of the volume of interbank activity it wishes to undertake can be independent of its policy towards non-bank activity. That is, an individual bank has some freedom to decide whether to keep its interbank activity to some minimum it feels is necessary to support its non-bank business or to adopt a more active rôle and, for example, engage in extensive market jobbing. This probably holds true for the market as a whole, albeit to a lesser extent, and thus, although it may be that interbank business cannot contract beyond a certain point without having some effect on the volume or pattern of non-bank lending, an expansion of interbank lending need not have any such effect.

A distinction needs to be made, therefore, between banks' lending and funding policies. The decision by a bank to increase its volume of lending to non-banks, or to specialise in lending to particular borrowers or in particular kinds of instruments, may be made easier because the interbank market provides a convenient source of funds. But it could be argued that the market plays a passive rather than active rôle and can perhaps be best likened to a tool, the effect of which, however carefully the tool is made, depends largely on the skill of its user.

Postscript: Adjustment in the market

On a number of occasions over the years, before the recent period of difficulty, individual banks have faced changes in the terms and availability of funds in the international interbank market, reflecting changes in market perceptions of the risks involved in placing funds with those banks. Market reactions have included increases in the costs of funds to individual banks, or to all banks from a country that was experiencing financial problems; reductions in credit lines to banks; and generally some shortening of the maturity of placements. Some banks have adjusted to such adverse changes in their standing in the interbank market in part by offering to borrow at higher rates – although the volume of funds that can be attracted through payment of exceptional premium rates has proved to be limited, as market participants have frequently regarded an offer to pay rates higher than have been normal for that particular bank as a sign of weakness. Banks faced with liquidity pressures in the interbank market have also sought to increase their funding from other markets (notably domestic currency markets) and to meet withdrawals of funds by reducing holdings of both interbank assets and claims on non-banks.

The speed with which such an adjustment has been required has often been the principal factor affecting the form that it takes and the impact that it has had on the banks directly concerned and on the market generally. Rapid withdrawal of deposits from individual banks or groups of banks has generally been a reflection of loss of confidence in those institutions, and over the past decade a few banks operating in the international interbank market have been closed. The impact of those closings on the market was limited in scope: while some tiering occurred, banks that sustained losses as the result of the closing of other banks were able to absorb those losses and to continue to operate in the interbank market, albeit on a somewhat reduced scale. As noted earlier, during the period of consolidation and adjustment that followed the failure of the Herstatt Bank, the international interbank market declined in

overall size by something in excess of 4 per cent., before resuming growth during 1975.

Over the past few months the market has had to weather one of the severest storms since its inception. The debt difficulties of a number of countries and corporations, and the failure of a number of banks, have provided a major test of the market's strength. Inevitably there has been an effect on market conditions. The international banking system is now more wary because of the series of shocks that it has endured and probably rather more alert to the risks involved in interbank lending. The credit quality of interbank transactions has been re-evaluated. In the short run, the general uncertainty and unease may have reduced the volume of business in certain segments of the market and may have led to a tendency towards lending at shorter maturities. Apart from the obvious areas of major difficulty of Latin America and Eastern Europe this has apparently caused few significant problems, but has meant that some banks have had to work rather harder to arrange their deals.

What is particularly striking is how robust the market has shown itself to be. An important characteristic of the events so far is that they have been confined largely to the fringes of the market. Banks have rightly identified that in each case the problem has been in the risk of a particular sort of lending – whether country risk, for example, or the risk of lending to a particular sector of the economy – rather than anything inherent in interbank business itself. Moreover, some central banks and a number of commercial banks with a major involvement in international banking have acted to contain the problems which have arisen in particular segments of the market. In consequence, the difficulties have not spread throughout the market. Rather, there may now be emerging a new and healthy awareness of risk and a greater degree of discrimination – developments which should help in the long run to improve further the strength and stability of the international interbank market. But it is of course necessary that these developments should be gradual and orderly and that they should not be associated with any abrupt change in the size or composition of the market.