

EURODOLLARS :

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EURODOLLARS.

Eurodollars are dollar deposits held initially by banks outside the United States against a liability to another non-US domiciled bank, corporation or personal holder. The key point is that a Eurodollar involves a claim by and a liability to foreign residents, as well as the claim on a US bank by virtue of the dollar deposit. The distinction may become clearer if we look at the process of Eurodollar creation. A German exporter, a European Central Bank, or a Middle Eastern oil magnate may all hold dollar deposits in a New York Bank A. This involves a liability by New York Bank A to any one of these customers, and a claim by them on the bank. It may, however, become profitable for any of these holders of dollar deposits to lend these deposits to another institution outside the United States, because, for example, the interest to be earned from so doing would be higher than that obtainable from the US bank or money market. Thus the German exporter transfers his claim on New York Bank A to a UK Merchant Bank X, the latter now possessing a claim on New York Bank A and a liability to the German exporter. Thus instead of one claim and one liability on the original dollar holding, we now have two claims and two liabilities (the claim by the exporter on the Merchant Bank, and the claim by the Merchant Bank on New York Bank A). This multiplication of claims and liabilities may continue over a number of transactions: the Merchant Bank X transferring the deposit to a French Bank, who in turn transfers it to a US subsidiary in France. In principle this might be expected to continue indefinitely, but is limited by the fact that (a) each bank in such a chain may keep some portion of the dollar deposit as a reserve against the Eurodollar liability; (b) each link in the chain must expect to make a profit on the transaction, and since there is to all intents and purposes a margin within which Eurodollar rates are competitive (that between the lending and the borrowing rates in the US) this too will limit the amount of re-depositing that is possible.

Thus the principal distinguishing features of the Eurodollar market as a generic type are:

- (i) liabilities and claims relate not merely to banks in the US and banks and others outside, but also banks and others outside between themselves.
- (ii) a whole chain of Eurodollar claims and liabilities may derive from a single dollar deposit: this chain will be predominantly composed of banks lending between themselves.
- (iii) inspite of the pyramiding of claims and liabilities denominated in dollars, the actual dollar claims on the US will remain unaltered. All that happens is that a single dollar claim is passed from one owner to another.

We are now in a position to understand the definition offered by the bank for International Settlements in the 34th Annual Report. They defined a Eurodollar as "a dollar that has been acquired by a Bank outside the United States and used directly or after conversion into another currency for lending to a non-bank customer, perhaps after one or more re-deposits from one bank to another". (p.127).

To the above three features we should add the following:

- (iv) the market is predominantly short-term; standard maturities being call, 7 days, 1,3 or 6 months.
- (v) Eurodollars are predominantly non-negotiable. The drawback of this is that lenders lose flexibility by not being able to recall their money outside the period of the loan. Option contracts (by which depositors are entitled to reclaim their money at any time after a certain date) and break clauses (by which reclaims are permitted at the cost of a penalty) did little to mitigate this. From May 1966 London-based banks have started to issue negotiable dollar certificates of deposits - essentially Eurodollar notes - in which there is a secondary market. By October 1966 the market had reached \$150m.

(see 5: 169-184).

(vi) Eurodollars are handled for very low rates, perhaps $\frac{1}{4}\%$ on a transaction. This is because of (a) strong competition between multi-national banks: competition among US banks for dollar deposits has been diverted to the Eurodollar market, for example; (b) the fact that many banks have regarded Eurodollar business as marginal and have thus been content with a return covering operating costs; certainly some American banks have entered the Eurodollar market not for profit but to keep their names in evidence: Eurodollar transactions tend to be in large amounts, at least \$1m.

(vii) The Eurodollar market is closely tied to Foreign Exchange markets, both because the supply of Eurodollars may come from switching out of other currencies, and because the demand for Eurodollars may derive from a demand from other currencies. The forward exchange market is of particular importance: some Eurodollar/other currency exchanges are not covered, but there is a tendency not to take this risk, a tendency which in some countries like the U.K is enforced by law. Cheap forward cover thus becomes crucial for a market working on such small margins. The US helped and encouraged European central banks to provide cheap forward cover against this risk, and the Germans, Swiss and Italians all provided such facilities to their commercial banks at various times. The UK's policy of official intervention in the forward market to keep down forward rates for more general balance of payments purposes undoubtedly helped the London Eurodollar market particularly for short-term arbitrageurs. (1:76)

The amount of switching is difficult to estimate exactly. On the supply side, Chase Manhattan write that "it appears that an increasing share of Eurodollars is being generated by foreign based companies and individuals swapping local currency into dollars, rather than by direct transfers of dollar deposits from a US banking office to a bank

or branch in Europe." (2:8) On the demand side, swapping is undoubtedly high during speculation, but with the increasing importance of US bank borrowing from European branches (now well over 40% if we take the latest Federal Reserve figures for the end of July 1969 of \$14.6b. borrowed by US banks - see Times BN.8.8.69) it is perhaps of decreasing relative importance. The Bank of England estimated in 1964 that about 10% of the £1,300m external liabilities in foreign currencies was swapped into sterling (1:32-34) John Spraos in his paper to the Ditchley Conference on the Foreign Exchange Market in March 1967 saw a swing of £289m. in net liabilities of UK banks in foreign currencies between March 1965 and September 1966, as a figure indicating the variation which could occur in the swapping between currencies and sterling. (pp.3-4). Chalmers estimate for 1967 is £500m. (1:97) Other than Britain, Japan has borrowed heavily on the Eurodollar market for domestic funds (Chase estimated Japan took 5% of Eurodollars in 1968 - see 2:14), and in Italy the Central Bank has on occasions, such as 1962-3, encouraged their commercial banks to borrow in the Eurodollar market for domestic purposes. This form of domestic switching is particularly important for countries with less developed domestic money markets. (1:76) These figures and instances have been elaborated to emphasize the closeness of the connection of the Eurodollar market to the foreign exchange markets.

(viii) Eurodollar loans are largely unsecured; transacted on the telephone with written documents in the form of confirmation, they could be said to travel incognito. The loans are made against bearer bonds, with ownership not disclosed by registration. Thus, particularly where Eurodollars are lent along a chain of banks, it is unlikely that the ultimate lenders and borrowers will be known by those not directly involved with them. There is, too, no clearing house for information

among Eurobanks, with the result that the limits which the banks set for lending to any particular borrower can be got around by the borrower going to a number of unconnected banks.

We may summarise this discussion of the characteristics of the Eurodollar market by emphasising that it is best understood as a wholesale money market. All transactions are inter-bank transactions - and a large proportion of them are undertaken for more general reasons than the marrying of specific demand and supply. The large sums, the low margins, and the informality of the market are all characteristic of such a wholesale market. The degree of trust which this form of operation entails, as well as the specifically international experience required, are among the principal reasons for London being the centre of the Eurodollar market.

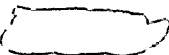
Growth of the Eurodollar Market.

Einzig in his 'History of Foreign Exchange' records the medieval practise of drawing bills at the quarterly fairs in terms of foreign currencies other than those of the countries of payment, and he suggests that since business was actively transacted in foreign currencies at such fairs, such bills were often paid out or into foreign currency deposits. Certainly there were transactions in sterling deposits in foreign countries prior to 1914, and indeed they continued up to 1931.

The size of the Eurocurrency market make it quite a distinct phenomena from the historical parallels. Although there is still a market for sterling deposits, as well as smaller ones for Marks, French francs, and Swiss francs, the Eurodollar market accounts for some 80% of the Eurocurrency market and is now the dominant currency as sterling was before the 1st World War. Furthermore, it can be profitably analysed on its own not merely because of its dominance

but because the other Eurocurrencies chiefly arose because of particular restrictions. Thus the demand for Eurosterling is mainly from foreign residents who want to borrow sterling, perhaps as a means of establishing a short position and are prevented from doing so by British exchange control from borrowing sterling in London. It is for this reason that the rate for Eurosterling rises at the time of speculation, and generally moves with the forward discount to keep it in line with the Eurodollar rates.

On the other hand the market for Euro-Swiss francs, and Euro-marks is based on restrictions which forbid the payment of interest on deposits by foreigners in Switzerland and Germany. (14:171) The Eurodollar market's growth must, however, be attributed to a variety of causes on the side of both supply and demand.

The Eurodollar market appears to have begun in the 50's as the result of a preference by Eastern European countries to holding their dollar balances with Western European rather than with American banks. It was not until the late 50's that it developed rapidly. First the UK, as part of the defence of the pound in 1957, limited the use of acceptance credits in sterling essentially to the financing of British foreign trade: the strictest controls being placed on the financing of extra sterling area trade in sterling. This was a direct restriction on sterling's role as an international trading currency, and London banks, seeking to continue as a world banking centre, instead turned to dollar deposits as a means of financing extra-sterling area trade. (14:170) (Relaxed in 1959). Further, with the return to convertability in the Atlantic economic area in 1958, market differentials became important. In the US interest on time deposits was restricted under Regulation Q. On three month time deposits the maximum rate that US banks could offer was 2% up to 1957, 2½% up to 1963 and is now, in mid-1969, 6½%. At the same time the banks in the US voluntarily set the minimum charge to prime borrowers at 4½% in the early 60's (effectively higher since they 

required off-setting deposits for 20% of the loan). Given these limits, banks in Canada, London and on the continent found they could afford to pay higher borrowing rates and lower lending rates in dollars, particularly as they were willing to work on lower margins as discussed in (vi) above.

In 1960 it was estimated that the Eurocurrency markets had a volume of \$1b. (16:327). By 1964 the Eurodollar market alone had reached \$8b. (2:18), a growth accounted for not only by the factors mentioned above, but also because of the US deficit leaving dollars in the hands of non-Americans plus the increasing practise of European Central Bank intervention in the market either on the supply side or by encouraging their own commercial banks to hold dollars in order to curb internal liquidity. In 1965 the US Voluntary Foreign Credit Restraint Programme was introduced, followed by the mandatory controls on US direct investment abroad on January 1st 1968. These measures, coupled with monetary restraint in the US itself, gave a further major boost to the Eurodollar market.

We may thus summarise the major reasons for the growth of the Eurodollar market as follows:

1. The relaxation of controls in the form of convertability from 1958, and the ending of other exchange controls in Western European countries giving commercial banks and non-banking firms greater freedom in foreign capital transactions.
2. The increase in certain controls, notably:
 - UK's limitation of use of acceptance credits,
 - US Regulation Q. [REDACTED]
 - US limitations on foreign capital outflow in 1965 and 1968.
3. The consolidation of the dollar as the principal vehicle currency, and the increasing deficits run up by the US in the late 50's and throughout the 60's. Undoubtedly these deficits have contributed to the market's expansion, though it is as well to note Klopstock's

argument that the market would have grown and would continue to grow even in the absence of such deficits. Foreign holdings of liquid balances seeking suitable investment media really have only the US, London or Eurocurrency markets to choose from, and of these the Eurodollar market has perhaps a singular attraction. Holdings of liquid balances would continue without a US deficit, and it is noticeable that substantial amounts of such funds are invested in the Eurodollar market by residents of countries that themselves have deficits vis a vis the US, (7:19).

These three factors formed the necessary conditions for the Eurodollar market to perform the functions demanded of it by both suppliers and demanders of dollars, discussed below.

Size and Location of the Eurodollar market.

We have seen how the Eurodollar market rose from a volume of under \$1b.in 1960 to \$8b.in 1964. Since then it has grown as follows:

Table 1. Growth of the Eurodollar market.

	US \$s billions.
1963	5 ⁺
1964	8 ⁺
1965	10 ⁺
1966	13 ⁺
1967	16 ⁺
1968	(16 [*])
mid-March 1969	(24 [*])
June 1969	(30 [*])
Déc. 1969	35 "

+ BIS. (2:18) for 1964-67
(10:13) for 1963.

* figures for Eurocurrency markets by Dr.E.Stopper president of the Swiss National Bank. (11:4)

" (Chase Manhattan. FT.Supp.4.12.69).

Note: Figures often conflict. For example, Stopper gives 12 b. for Eurocurrencies in 1967, while the BIS give 16 b. for E\$\$. Further Milton Gilbert, Economic Advisor to BIS, estimated a Eurocurrency figure of 13 b. in 1966 December, of which 11 b. were Eurodollars. Geoffrey Bell in the Times estimates the Eurodollar pool at \$30 b. In April 1969 whereas Stopper gives this figure for Eurocurrencies. (15:23) One of the principal difficulties in making reliable estimates is to exclude the double counting which may arise if say a dollar is deposited with a UK bank, or lent abroad, and then re-deposited back into the UK again. The BIS have now co-ordinated the dates for which monthly returns are made to it by Eurobanks, and this lessens the problem somewhat. For country figures see BIS annual report 1965-66, reprinted in 5: 191-2.

This enormous growth of the market should be set beside three sets of figures:

(i) trade and investment transactions. World exports in 1963 were \$136 b, and in 1968 \$212.6; world imports for these years were \$143.5 and \$224.3b. The total value of world trade therefore rose from \$279.5b. in 1963 to \$436.9b. in 1968. US overseas direct investment has slowed considerably from \$3.5b. in 1966 to \$2.4b. in 1968 (Int. Fin. Stats. June 1969. US. p. 324-5). The liquidity needs are much higher than this for the total stock of investment overseas by US firms: private direct investment in 1967 totalled \$54.7b. Overseas affiliates now spend over \$10b. p.a. on plant and equipment, and repatriate over \$5b. in dividends, fees and royalties. (2:7) Chase Manhattan estimated total financial needs of US overseas subsidiaries in 1967 at \$20 b. There are no comparable figures for multinational firms incorporated outside the US: Rolfe suggests that they constitute, in book value, c. 2/3rds of the US figure. It is extremely difficult to work out on the basis of these transactions, figures for necessary liquidity: such calculations have been notably absent from the controversy over international monetary reform, the argument being conducted on the basis of growth rates in international reserves compared with the increase in international transactions.

(ii) international reserves. Total international reserves in the last quarter of 1968 were \$76.3 b. as reported by the IMF. Of this gold holdings represented 38.9 b., foreign exchange holdings 30.9 and reserve positions in the IMF 6.5 b. This compares with total international reserves in 1963 of 66.4 b.

with the breakdown constituted thus: gold \$40.2b; fe \$22.2b; rp IMF \$3.9b.

(IF Stats pp. 13-16).

(iii) external liquid dollar liabilities. In 1963 these stood at \$26.3b. and rose to \$33.6b. in the last quarter of 1968. Of the 1968 figures \$31b. were short-term liabilities, with \$19.4b. of the total being held by non-official banks and individuals, \$12.5b. by central banks and governments, and \$1.8b. by international agencies. The crucial figures to abstract here are that proportion of the total which are short-term and liabilities to non-official banks. The figures for these are as follows:

Table 2.

Short-term Dollar liabilities to foreign non-official banks.

	§s. b.				Head Office
	<u>Total</u>	<u>W. Europe</u>	<u>Canada</u>	<u>Other</u>	<u>Liab. to brchs.</u>
1963	5.7	-	-	-	-
1964	7.2	3.3	1.8	2.1	(1.0)
1965	7.4	3.5	1.5	2.4	(1.7)
1966	9.9	5.9	1.7	2.4	(4.6)
1967	11.0	6.2	2.1	2.8	(4.2)
1968	14.3	-	-	-	(6.0 ⁺)
1969	-	-	-	-	(14.6 ⁺)

Source. International Financial Statistics. June 1969.
pp. 322-323.

Figures are for last quarter.

Survey of Current Business Sept '66, Sept '67, Oct '68.

+ figs for mid year, 1968 from SCB Oct '68 p.32 1969

x figs from 7:9.

Total holdings of dollars by banks abroad would be higher than this since considerable sums are kept in the US as working balances. The figure in March 1966 was \$3.7b. as against total holdings of dollars of \$11.6, leaving \$7.9b. as the overseas liabilities. The US figure for the first quarter of 1966 from the source for Table 2 is \$7.8b. Total Eurodollar holdings can exceed the figures above for two reasons: (a) re-depositing which has not been netted out; (b) claims can remain outstanding after the balances to which they were linked originally have disappeared. If a Dutch bank re-lends its New York dollar deposit to an Italian importer, who uses it to buy cars from France, Renault banks the dollars which end up in the bank of France and are converted into Gold. The dollar deposit disappears, but the Dutch bank's dollar claim remains outstanding until the Italian importer repays it. (14:171.) It should be noted incidentally that the figures in Table 2 include liabilities of head offices to their foreign branches. These figures are given in the last column to the table.

Thus we see that while US liquid liabilities have gone up by over a quarter from 1963 to 1968, the liquid liabilities with respect to foreign non-official banks have increased as a percentage of total liquid liabilities from 22% to 43%.

Given the size and significance of the market, we now turn to its location. Altman speaking in 1964 estimated that there were 400 commercial and private banks in the Eurodollar market, channelling deposits from at least 25 countries to borrowers in at least 35 countries. (13:1) The centre of the market is London with the Bank of England estimating a total number of 130 banks operating in the market in 1964, of which 40 handled the bulk of the business. Hirsch estimates that London accounts for 1/3rd to 1/2 of the market, but this may now be considerably more. Some idea of the amount of the Eurodollar currency transactions passing through the London market can be gained from the Bank of England's statistical series called "U.K Banks' external liabilities and claims in foreign currencies." These do not exactly measure Eurocurrency transactions since they also include the Banks' foreign currency balances held with their correspondants abroad (working balances for their day-to-day business overseas) as well as balances held on behalf of UK customers who have exchange control authority to retain foreign currency. But the large growth in this item in recent years, as the Bank of England says, "has come about as a result of their on-lending abroad of currency funds which have been deposited with them by overseas residents." (1:17) The figures of the growth are given in Table 3, alongside those for estimates of the Eurocurrency market, the Eurodollar market, and dollar liabilities to foreign non-official banks.

Table 3.

UK Banks' External Liabilities and Claims in Foreign Currencies.

US \$s billions.

Year	Eurocurrencies All	E\$	dollars liabilities to Foreign non-official banks.	UK Banks External Liabilities in Foreign Currency.	UK Banks' External Claims in Foreign Currency.	UK Banks' net position in foreign currency.
1961	3	-	-	-	-	-
1962	-	-	-	2.9	2.8	-.08
1963	7	5	5.7	3.6	3.6	-.03
1964	-	8	7.2	5.0	4.6	-.44
1965	-	10	7.4	5.9	5.5	-.40
1966	13	13	9.9	8.4	8.5	+.05
1967	12	16	11.0	10.5	10.5	-.02
1968	16	-	14.3	17.1	17.1	-.07
1969	30	-	-	-	-	-

Sources:

1. Eurocurrencies. 1963 (10:13) 1966 Whiting p.66; 1967-9, Stopper p.4.
2. Eurodollars. BIS in (2:18)
3. Int.Fin.Stats. June 1969. pp.322-323.
4. Int.Fin.Stats. June 1969. pp 316-317 (line 5)
5. ibid. (line 7)

The fact that a large proportion of UK External liabilities and claims are in US dollars can be seen from the following figures:

Table 4.

UK Banks' External Liabilities and Claims in Foreign Currencies.

UK £s b.

Year	UK Liabilities			UK Claims		
	Total	US \$s	Other	Total	US \$s	Other.
1966	3.0	2.7	0.3	3.0	2.6	0.4
1967	4.4	4.0	0.3	4.4	3.8	0.5
1968	7.1	6.4	0.7	7.1	6.2	0.9

Sources: Bank of England Quarterly Bulletin. March 1969. p.110.

Certainly it would appear from these figures that the proportion of the Eurodollar market going through London was increasing.

Demand and Supply of Eurodollars.

We have outlined the necessary conditions for the growth of the Eurodollar market, and discussed the manifestations of its growth, its size, and location. We come now to discuss the central determinants of that growth, namely the factors behind the demand for and supply of Eurodollars.

Demand.

We can distinguish four types of demand for Eurodollars:

1. Trading. An important portion of Eurodollar demand is for the finance of international trade. They are preferred to acceptance credits because of their availability and low interest charges, and because of their acceptability. Already by 1967 Peter Oppenheimer estimated that Eurodollars financed a quarter of world trade, and this figure is now probably higher. (see The Banker August 1967) Some countries have sought to restrict their nationals' use of Eurodollars to this purpose, the French, for example, limiting the use of Eurodollars to those engaged in foreign trade, prohibiting their use by purely domestic corporations such as hotels and department stores. (13:2) Eastern European countries have from time to time been net borrowers for trading purposes in the 1960's.
2. Credit Source. Banks, firms and public bodies have bought Eurodollars for more general credit purposes. This is, of course, the reason for the high demand by US branches in the market at the moment, and a general demand for credit at home was also one of the reasons for Italy borrowing \$750m in 1962-1963. Japan helped finance a domestic credit expansion through borrowing Eurodollars; and the Belgian Government has directly or indirectly financed part of certain budget deficits in the same way. (1:31-2) In Britain Eurodollars have been swapped into sterling and then placed with local authorities and Hire Purchase companies, while some British companies like R.T.Z have gone straight to the

market to finance overseas expansion. German firms, too, have gone to the market for finance for foreign investment particularly for the construction of plants in underdeveloped countries. (5:70) Thus Eurodollars have served to finance both general credit expansion and particular demands for credit from official and private sources.

3. Money market device. Eurodollars fulfill the functions of an international money market instrument, parallel to federal funds, short-term government securities, certificates of deposit or unsecured promissory notes in the US domestic market. This new international instrument has allowed banks access to a money market often with a range of maturities, and a degree of liquidity far greater than their own domestic market (Italy is a good example). Banks in different countries have been able to deal with each other in order to adjust their own liquidity positions: this explaining in part the repeated interbank circulation of Eurodollars, as well as the fact that banks can be found simultaneously on the borrowing and lending sides of the market. Altman suggested on the basis of Eurodollars' utility in the money market sense, that already by 1964 banks were to some extent relaxing their compartmentalisation of Eurodollars from the rest of their banking operations and under the control of foreign exchange departments. Rather, he writes, "more and more banks look on their dealings in Eurodollars as an operation run by senior officers to increase the profits of the bank as a whole in both the short run and the long run." (13:4)

4. Speculative instrument. The three previous types of demand could all be classed as transactions demand. There is also a speculative (and to some extent a precautionary) motive for holding Eurodollars. Since the dollar is a vehicle currency, foreign holders of say Sterling and the Franc have tended to move out of these into Eurocurrencies for precautionary motives, while others have gone from or via Eurodollars into strong currencies. Thus during the May 1969 Deutschmark crisis it was estimated that 60% of the movement into Deutschmarks came from Eurodollars, that is \$2½ b. out of a speculative rush of \$4 b. (11:14)

The use of Eurodollars for this purpose can be put down in part to its establishment as an extension of the dollar's vehicle currency status, with the result that institutions, notably it has been suggested that international corporations who hold Eurodollars for transactions purposes, have been willing to speculate during brief periods when their deposits would otherwise be idle. (Times 12.6.69) For more elaborate forms of speculation, it must be remembered that the relative lack of exchange control on Eurocurrencies, as well as their cover of secrecy, makes this instrument well-suited for speculation.

Supply.

We may distinguish five types of intention for supplying dollar deposits to the Eurodollar market:

1. Cash from transactions balances. On the basis of the inventory theory of transactions demand for money developed by Baumol and Tobin, and applied to the Eurodollar market by Swoboda (9:39-41), an economic unit will run down its transactions balances with respect to (a) rising interest rates, and (b) increased liquidity of the investments, (this last point is not mentioned by the aforementioned authors, but is important in this context). The Eurodollar market has offered both rising interest rates and greater liquidity for certain types of international funds. Accordingly it is interesting to find evidence that international companies and banks use the Eurodollar market for off-loading excess cash. (7:2)
2. Cash from precautionary balances. Again Tobin's analysis of the precautionary demand for money suggests that such balances will be run down with rising interest rates (and greater liquidity of investment assets). In this respect, we see both official and non-official banks investing part of their dollar reserves in the Eurodollar market. Most notable here are the central banks from underdeveloped countries, as well as, for somewhat different reasons, the official banks from Eastern Europe. (7:2)

3. Speculative balances. Sales of dollar or Eurodollar deposits against a hard currency will usually cause a swelling of official reserves. However, it is interesting that these may be fed back into the Eurodollar market by the central bank to keep down the reserves. Thus during the May 1969 crisis the Deutsche Bundesbank bought over \$1 b worth of dollars from speculators moving into marks, and then re-lent them in the Eurodollar market. This bought the interest rate down on May 8th for one month Eurodollars from $10\frac{1}{4}$ to $9\frac{5}{8}$, but this had the effect of providing cheap dollars to speculators switching out of other currencies into dollars in order to go into marks. (Times BN.9.5.69)

4. Market Management. The example of the German Bundesbank's re-lending in the Eurodollar market, is an instance of a common feature of the Eurodollar market, which is intervention by central banks to manage either the Eurodollar market rates or domestic rates. Switzerland, Germany and above all the Bank for International Settlements have intervened with the direct intention of ironing out fluctuations in the Eurodollar market. Stopper of the Swiss National Bank sees this as an increasingly important function for central banks: they should "be ready, in the event of a loss of confidence, to support this market by taking in substantial amounts of dollars, to offer forward cover to the economy, (dollar purchases and sales by the central bank on a forward basis) and to extend the swap network with the Federal Reserve Bank of New York."(11:6) Domestically, Italy provides a good example, where her Central Bank provided dollars and cheap forward cover to her own commercial banks in order to take liquidity out of the domestic economy.

5. Investment funds. At least some of the supply comes from medium and longer term investors. Thus funds are forthcoming from the Middle East and Latin America, certain of whose private citizens wish to invest in Western money markets. International firms have at times also supplied the market with medium term funds: Squib, the US drug firm for example, places surplus funds from its Irish operations on which there are restrictions because of US direct investment regulations, in the Eurodollar market. Recently, too, one of the new sources

of supply which is posited as underlying the decline in Eurodollar rates in July and August 1969 has been stock owners. The bear market and the yields on Eurodollars are said to have caused large disinvestment on Wall Street, both by residents and non-residents. One consequence of this may be the partial correlation of Eurodollar rates and those available in secondary American markets. (Economist. 9.8.69 p.52).

Institutions in the Market.

In the course of discussing the types of demand and of supply, we have had cause to associate a number of them with particular institutions. In this section I want to summarise the role which certain of these institutions have played on both sides of the market.

1. International Firms.

International firms have been an increasing factor on the demand side, particularly after the restrictions placed on their overseas operations by the Voluntary Programme of 1965, and the mandatory measures of 1968. US multinationals have, in recent years, financed about 40% of their overseas operations from cash flow generated abroad, 35% from external sources abroad, and 25% from capital transfers from the US. This last figure was significantly cut after 1965, and has been offset by major borrowings on the Eurodollar and Eurobond markets. It is difficult to know exactly the quantity of the demand: as we have seen above the needs for financing of overseas operations have been estimated at over \$20 b.p.a. by Chase Manhattan; in 1968 the Survey of Current Business reported an intended expenditure by overseas affiliates of US companies of \$11 b.

More specifically, US international firms are reported to use the Eurodollar market for the following demand purposes:

- financing the working capital needs of subsidiaries (7:14) including finance of intra-firm trade. In Sweden and Canada, corporations hold Eurodollars on current account for transactions purposes. (7:2)
- Financing issues of long-term securities in Europe, particularly those denominated in dollars. (1:10)

- speculation: it was said that international firms were involved in the speculation around the Deutschmark in May 1969. (Anthony Thomas in Times 12.6.69)

and with the following motives:

- availability of funds given the US restrictions.
- as a way round restrictions placed by monetary authorities on domestic fund raising.
- as a way of lessening the scrutiny of banks when borrowing funds.
- for tax credit reasons; this was particularly relevant early on for investments in Canada. Canada might tax a US branch 50% on the corporate tax rate, plus 15% branch profits tax on the remaining income - leading to an overall tax rate of 57½%. The US would grant tax credit only on 52% of this, which would leave the corporation with some unused tax credit. If the corporation transferred some of its funds invested in the US to bank accounts in Canada, it would produce some investment income taxed at say 15% withholding tax, and this when taken with the earlier yields and taxes would mean that virtually all tax payments in Canada would be offset under the 52% allowance. This held at least in 1960-1961. (17: 302-3)

Borrowing for these purposes has favoured the largest corporations, partly because of the size of Eurodollar transactions, partly because they have credit names which satisfy Eurodollar lenders, and partly because they have often the most extensive relationships with the US banks whose branches operate in the market. As Chase Manhattan put it, "only large companies with excellent credit standing are ordinarily eligible for Eurodollar credits....even relatively strong overseas subsidiaries of major American companies are frequently required to supply the lending bank with a parent-company guarantee, insuring the lender that an unquestionable source of dollars is in reserve should the subsidiary's own dollar sources fail." (2:16)

One other more general result of international company borrowing on the market has been a strengthening of their position vis à vis banks as a group. Einzig notes that Eurodollar facilities have lowered charges made by banks on loans to large corporate borrowers. "Rather than lose valuable accounts, the American banks are willing to reduce to some extent their profit margins on their transactions with that type of client." (5:97) Moreover European banks were affected, too, particularly as far as cartels on lending rates were concerned. Terms improved, notably in Germany and Italy, at which large firms

could borrow. (14:170).

On the supply side we should note the following:

- short-term investments of transaction funds.
- short-term investments of money raised on the European security market. Many security issues were floated in advance of need, and the money thus raised was invested in the Eurodollar market until it was needed to pay for plant and equipment. (1:10) Thus in the 18 months up to June 1966 US corporations raised \$530 m of foreign funds through their affiliates; only \$157 m. of this appears to have been used for direct investment outside the US during the period, a large proportion of the balance evidently being invested in the Eurodollar market. (1:56. and Survey of Current Business. Sept.1966. article on "Foreign Investments 1965-66." by Samuel Pizer and Frederick Cutler*)
- investment of excess cash balances.

We may expect the role of international firms in the market on both sides to remain strong, particularly as more and more of US and European multinationals are developing a policy of global financial optimisation on the lines that the large oil companies, Unilever and so on have for long employed.

2. International banks.

International banking networks have both encouraged and been encouraged by the Eurodollar market. We have already noted how many banks have built up overseas branches for the sake of partaking in the market, and of preserving accounts of home based multinationals.

The most important group of banks is the US majors. US banks accounted for 1/3rd of the demand in 1967, and this is probably now much larger after the recent increases of the past 18 months since the beginning of 1968. Further, the Eurodollars transferred from US banks' branches abroad back to head office, should be added to the funds which those branches extend to other banks, and to US corporate affiliates abroad.

Non-US banks have also expanded to deal in the market, including such banks as Standard Bank and the Bank of London and South America. These non-US banks have further often been prominent in the establishment of consortia, together

with the smaller US banks in Europe. One set of examples of this co-operation is the setting-up of special medium term lending institutions. (2:19)

The demand for Eurodollars from these banks, as distinct from acting as intermediaries between non-bank customers may be summarised:

- demand for Eurodollars as money market devices for adjusting liquidity positions.
- sources for credit, particularly important where no reserve requirements are attached to Eurodollars. Those banks which are not required to hold reserves against Eurodollars are those responsible for the bulk of interbank lending of Eurodollars, since the fine margins tend to cut out those banks who have to set reserves aside for Eurodollar liabilities. (12:549)

The supply from these banks may be detailed as:

- investments of excess cash balances.
- investment of reserves.

3. Central Banks.

Central Banks and official agencies were to begin with the major providers of funds, accounting for some 2/3rds of the supplies of dollar deposits to the market in 1962 (1:8) by 1965 their estimated contribution had fallen to 1/3rd (1:8), \$2¼ b. out of the total volume of funds of \$9½ b. being provided by the official monetary institutions of Europe, principally by the Italian Exchange Office and the BIS. (14:169) By 1968 the share of all official sources of Eurodollar supply had fallen even further to 15-20% according to Chase Manhattan (2:8).

Other than the Eastern Europeans, the central banks and official institutions (excluding the Belgian government for the moment) have been rarely operative on the demand side - save indirectly for the sake of monetary management. On the supply side we may list the motives of supplying as:

- higher earnings on dollar reserves.
- managing domestic and international money market.

Chase Manhattan aptly summarise the role of the central banks in the market

in this way: "Central bank participation has enhanced the Eurodollar market's growth and stability. Although regulated and without a lender of last resort, the Eurodollar market has become too important to be ignored by the major central banks. Their participation has placed an implicit stamp of official approval on its existence and operations." (2:10)

Location of Demand and Supply.

We have discussed the location of Eurodollar operations. Note should be taken of the location of ultimate sources of demand and supply. The following are Chase Manhattan's estimates for 1967:

Table 5.

Sources and Uses of Eurodollars by Country. 1967 estimates. in %.

Country	Sources	Uses.
U.S.	13	31
U.K.	8	16
Italy.	9	7
Switzerland.	16	-
France.	7	6
Other Western Europe.	20	17*
Canada.	5	-
Latin America.	5	-
Middle East.	6	-
Other:	11	22 [†]
- of which Japan	-	5
Total	100	100

* includes Switzerland

† includes Canada, Latin America, and the Middle East.

Source: Chase Manhattan. Eurodollar Financing. 1968. p.14.

We may summarise the positions of various countries as follows:

- the US has maintained its position as the major net borrower.
- the UK and Japan are still net borrowers.
- Eastern Europe has changed from being a net supplier at first to being in a more fluctuating position in the 1960's.
- underdeveloped countries have been net suppliers: there are banks both in Nassau and the Lebanon operating in the Eurodollar market. (7:2)
- Italy swung from being a large supplier in the early 60's, to a large borrower, and then after 1964 to being a net supplier again.
- Europe as a whole, according to Table 5, supplies 60% of Eurodollars and uses 47%, North America 18% and using 31%.

These figures should be treated with circumspection, however, for they refer to the country of origin of the dollar demand and supply, not the nationality of the demander or supplier. (see also figures for UK External Liabilities and Claims in Foreign Currencies in Bank of England Quarterly Bulletin. cf. 1: pp.18-19. The Bank writes in the June 1964 Bulletin, "dollars placed by (say) an East European country with a bank on the continent may be re-deposited in London; they would then be included in UK figures as a liability to a country in Western Europe." 1:30).

Credit Creation.

In discussing the significance of Eurodollars on national and international economies, the first issue concerns their effect on liquidity. On the one hand there is clearly the danger of double counting, realised in the statistics, since successive time-deposit liabilities among Eurobanks do not in themselves add to the means of payment for commercial transactions. Multiple dollar creation would vanish when the balance sheets of the various intermediating Eurobanks were consolidated. Not all such 'intermediating' dollar creation has been netted out of the statistics which form the basis for estimates of the size of the Eurodollar market. Nevertheless, commentators and money market practitioners do believe that Eurodollars have had a significant effect on international liquidity. The President of the Swiss National Bank, E. Stopper, writes: "the Eurodollar market can act as a reservoir for evening out international liquidity. As a result of differences in interest rates the liquidity in this market finds its way to where it is needed most. Hence the

relatively rapid turnover. This peculiarity of the funds in the Eurodollar market is probably one of the reasons why in recent years the world has suffered from too much rather than too little international - and in most cases also national - liquidity." (11:4). Other European bankers have drawn opposite conclusions believing that the expansion of the Eurodollar market is the market response to a shortage of liquidity and is to be supported as such, constituting, too, a disproof of the fears of the shortage of international liquidity. There is general agreement, however, that the market does, to some extent, increase liquidity.

The first way it does so is by activating previously idle balances. The very efficiency of the market and its favourable terms allows the finance of trade, and even investments, with funds which might otherwise have remained less productive. The practise of central banks, particularly those outside the major financial centres, of committing part of their dollar reserves to the market rather than holding them in an American bank, is an example of this. We may see this as an increase in the velocity of dollars.

Does the market also lead to an increase in the money supply itself, defining money supply as cash plus demand deposits? To answer this it will help to distinguish between 'pyramiding' which takes place in a single chain from original lender to final borrower, and the re-depositing in the market of the proceeds of the loan to the final borrower. The first case is that discussed in the previous paragraph, where a sum of money previously held in idle balances is in part transferred to active balances, (thus increasing the transactions velocity of money), and in part returned to the idle balances of the intermediating banks who hold them as dollar reserves. Now there is no international reserve ratio, specifying the amount of dollars that a Eurobank must hold against a particular loan. Indeed given the low margins earned on Eurodollar transactions, Eurobanks can clearly ill afford to hold significant transaction balances of deposits with US banks. Foreign banks that accept

dollar deposits from non-banks are not required to hold a portion of their dollar assets in non-earning dollar balances with their central banks (though some countries require that domestic currency deposits be held in the central bank against net dollar liabilities to foreigners). Reserves are not necessary for those dollar liabilities payable at stated maturity dates or after advanced notice. For deposits payable at call and current account deposits the function of dollar reserves may be performed by:

- (a) cash reserves in a local currency convertible into dollars.
- (b) stand-by credit lines with American banks.
- (c) call deposits of dollars in other Eurobanks.

Thus there is theoretically no end to the amount of pyramiding of dollar deposits in a single chain.

There are a number of factors, other than reserve requirements, which nevertheless confine the extent of the chain. The interest rate margin of the deposit placing bank often includes a risk premium. At each successive stage of the re-deposit this risk premium may grow gradually absorbing the margin altogether. Furthermore, even without a risk premium, the necessity for a margin puts a practical limit on re-depositing, given the structure of interest rates in competitive markets. Finally, a number of banks accept balances only if they need funds for end-use purposes.

Thus while theoretically the initial dollar deposit could be re-deposited throughout the banking system, this is in fact restricted both by the accumulation of margins, and by the necessity for at least some reserve holdings by the re-depositing banks.

Each re-depositing creates further dollar-denominated liabilities, and since such a European bank liability can be regarded as a liquid asset by the holder, the world supply of dollar-liquidity is expanded by these repeated transactions. This remains a financial rather than an economic phenomena, however, since banks can be regarded as non-spenders. The process nevertheless shows how the

double counting mentioned at the beginning of this section can so easily occur.

When the Eurodollar transaction is with an end-use commercial borrower we come to an analytically distinct situation. For the expenditure of the original demand deposits may not necessarily involve a total leakage. If, say, an Italian importer of French goods borrows on the Eurodollar market, the French exporter may place some at least of the proceeds back on to the Eurodollar market, and this amount will then be re-lent, after intermediation, to another final borrower. We are here involved with multiple credit creation.

Klopstock (1968) argues that this multiple credit creation is in fact small; the multiplier he suggests for Eurobanks is in the approximate range of 0.50 and 0.90. (7:8) The leakages may be traced to:

- (i) the loan from the Eurodollar market being paid to an American resident who then deposits the proceeds in a US bank rather than in a Eurobank.
- (ii) the conversion of the loan into a local currency needed for payment, and the non-returning to the Eurobanks of the dollars sold, e.g., by central banks.
- (iii) the expenditure of the proceeds of sale-to-the-borrower, this expenditure in dollars leaking from the Eurodollar markets in any of the ways specified.

For Klopstock these leakages are very substantial. The ability of the Eurobanks to expand their dollar liabilities so rapidly he adduces not so much to multiple credit creation per se but to their ability to offer attractive facilities to holders of liquid balances throughout the world. "In their Eurodollar loan operations Eurobanks pass on funds created almost entirely in the United States rather than by their own loans. They are well able to replenish their supply of dollars and thus to return to use in the Eurodollar system the dollars that disappear from the system as a result of their loans and investments". (7:9)

This view then, sees the Eurobanks very much as financial intermediaries.

"The dollar liabilities of Eurobanks, consisting almost entirely of call and time deposits, serve only to a limited extent as a medium of payment, and one Eurobank's loss of dollars is not likely to be offset by another's gain". (7:7) There are some exceptions to this. International companies maintain dollar accounts in Eurobanks, in which they receive payments from the US and other parts of the world and from which they make payments, sometimes by cheque. Many other financial and business firms also maintain such accounts rather than incurring the costs of selling dollars at bid and repurchasing them at asking prices. Again, a company in the US that receives a medium term loan from a Eurobank may keep the borrowed amount on deposit with the lender pending expenditure on projects abroad. Moreover some recipients of funds derived from Eurodollar loans, notably those from the oil-producing areas of the Middle East, make it a practise to hold a proportion of their continuously growing wealth in the form of Eurodollar deposits, (residents of the Middle East held at the end of 1966 approximately \$1 b. in dollar deposits with European banks). (7:8) In as much as these are developing practises we may expect the function of Eurobanks as commercial banks being able to create credit in much the same way as domestic commercial banks, to grow. Bell looks forward to this when he writes: "If...Eurobanks could be assured of a substantial return flow (perhaps as an incentive they might pay interest on demand deposits), there is no theoretical reason why the banks should not offer demand deposits with a dollar-denominated chequing facility. To the deposit holder, the deposit would be a perfect substitute (assuming that the cheques were generally acceptable) for a deposit in a US bank; and the banks by making loans would, in fact, be creating a medium of exchange and acting as a domestic banking system." (1:49)

Moreover, quite apart from the multiple credit creation, some writers have argued that the expansion of the Eurodollar market is likely to increase the supply of international money. Even if the proceeds from a Eurodollar loan

are not re-deposited in the market they are likely to be deposited in some other market and consequently leak to the expansion of credit there. Clearly if the money multiplier is lower in this second market as against the US, then the world money supply may contract, but Swoboda argues that the net effect of expansion of the Eurodollar market on the sum of bank deposits in the world is likely to be positive even given equal money multipliers throughout the world because:

- (a) an increase in the efficiency of financial intermediation reducing loan rates and increasing deposit rates will increase the share of bank deposits in the portfolios of wealth holders;
- (b) there is no necessary reduction in the claims on the US banking system as long as the multiple expansion takes place within the Eurodollar market itself since the Eurobanks will keep as reserves against their dollar liabilities the same amount as the deposit originally transferred from the US to the Eurodollar market. (9:33)

While the Eurobanks may expect to develop their role as international commercial banks increasing the money supply, their principal role so far has been as financial intermediaries increasing the velocity of money through efficient intermediation.

Eurodollars and the Balance of Payments.

As a basis for assessing the effect of and national policy considerations towards Eurodollars, it is important to clarify the effects of the growth of the market on national balance of payments. We must first be careful to distinguish between certain definitions of the balance of payments, or rather of deficits and surpluses in a country's balance of payments:

- (a) for the US the traditional definition by the Department of Commerce of the overall deficit has been the difference between total credits and total

debits on all parts of the account save the following below-the-line items: gold; official US holdings of convertible foreign currencies; foreign claims on the US by foreign authorities, distinguished by their convertability and non-marketability, and their medium term nature; and other liquid liabilities to foreigners (including marketable, foreign held US government securities of all maturities, plus bank accounts and other short term liabilities).

(b) the basic deficit adds to the above below-the-line items of settlement, (i) movements of US short-term capital, (ii) commercial credits received by Americans from foreigners, and (iii) errors and omissions. The basic deficit has in recent years been less than the overall deficit and has been favoured by the US authorities accordingly.

(c) the official settlements deficit defines the balance in terms of the changes in reserve assets (gold, official holdings of convertible foreign currencies and net IMF position) and of liquid and non-liquid liabilities to foreign official monetary institutions. This definition is often distinguished for analytical purposes from the liquidity definition of the deficit which includes liquid liabilities to all foreigners, and corresponds to the overall deficit definition outlined in (a) above. Both the US and Germany use the liquidity definition, including short-term capital in calculating their balance of payments, whereas the UK uses the 'basic method' (of item (b) above) which includes above the line only the current account balance and that for long-term capital.

Thus the main distinctions concern what should be regarded as above the line, the basic balance, and those which finance the basic balance, the items below-the-line. The distinction is that which Meade draws between 'autonomous' and 'accommodating' transactions, and which Yeager prefers to call 'independently motivated' and 'stop-gap' or 'compensatory' transactions. (cf. Yeager p.46). This is essentially the same as Machlup's accounting balance, which is an ex post concept obtained from adding certain items in the overall BoP accounts for a t₁,

and adding the rest as btl on the criteria that Yeager suggests. It also has an affinity to Machlup's second concept, the market balance, which is the difference between the amounts of foreign exchange effectively demanded and supplied over a period of time by buyers and sellers not motivated by a desire to influence the exchange rate. His third concept is the programme balance which is the difference between the amount of foreign exchange that some authority considers it necessary or desirable to have available over some future period and the amount that he expects to become available from regular sources. (Yeager p.49. Machlup EJ. March 1950). This last appears as a generic form for which the 'Full Employment Restriction Free' BoP estimates are a specific example. (see F.Hirsch. Money International. p.50)

The basic balance, as used by the UK, takes the dividing line as that between current transaction, and long term capital movements against the rest. This ignores the fact that some items on the short-term capital account cannot be said to be compensatory movements, in contrast to say movements of gold and official reserves. The liquidity definition adds into the basic account-to-be-financed, those items mentioned in (b) above including errors and omissions, and movements of US short-term capital: using a criteria of potential instability for its atl/btl distinction. The official settlements definition would raise above the line all short term capital movements save official reserves and liabilities to official foreign institutions. (For further discussions of concepts of deficits and surpluses, see: Walter R.Gardner, "An Exchange Market Analysis of the US Balance of Payments" IMFSP 1960-61 pp.195-211; Poul Hist-Madsen "Assymetries Between Balance of Payments Surpluses and Deficits" IMFSP 1962 pp.182-201, and the same author's "Balance of Payments" in Finance and Development March 1966; and "Measurement of Imbalance in World Payments 1947-58" in the IMFSP November 1962 pp.343-368).

Clearly Eurodollars may have different effects on a country's Balance of Payments according to the definition of balance employed.

The Eurodollar market has in principle no effect on the US balance of payments. It merely involves a change in the ownership of external liabilities, not an increase in them. The transfer of all Eurodollar holdings back to deposits in US banks would not accordingly change the Balance of Payments it would merely transfer ownership from bank to commonly non-bank holders. It would not, that is, change the balance on a liquidity definition - net changes in reserve assets and liquid liabilities to foreigners.

However, on an official settlements definition, the creation of Eurodollars does not help the US payments balance. For it tends to switch the holding of dollar deposits from official to non-official institutions, and accordingly lessens the item 'liquid and non-liquid liabilities to foreign official monetary institutions'. Since official institutions alone can exchange dollar deposits for gold, the transfer of ownership resulting from Eurodollar creation lessens the immediate threat to US gold holdings.

This is the most immediate difference suggested by the two definitions. Swoboda argues, however, that on the basis of the liquidity measure there is a deficit consequent to the increase in short term dollar balances being kept as reserves against transactions financed in the Eurodollar market. Nevertheless since this deficit should be seen in the light of the vehicle currency status of the dollar, Swoboda argues that in this sense the liquidity measure of payments deficits is misleading. (p.37) We shall discuss the relationship of the dollar as a vehicle currency to Eurodollars more fully below.

On either definition, the Eurodollar market has increased capital outflows. First, the higher rates in the Eurodollar market have encouraged capital export. While the US government restricted this, and US banks have refused on the whole to accept deposits from US residents for placement in the Eurodollar market, nevertheless it was possible up to May 1968 to place dollar balances on the

Eurodollar market through Canadian banks, and it still is possible through Swiss banks. Further, US corporations exporting capital to their subsidiaries can have these funds placed temporarily on the E\$ market by overseas branches of US banks (1:104-5). The connections with US and foreign banks which US international firms have built up in the course of their internationalisation have allowed them to take advantage of the Eurodollar market for optimising return from short-term funds. It is interesting to note, however, that Klopstock, who is Manager of the International Research Department of the Federal Reserve Bank of New York, suggests that most corporations who placed funds in the Canadian and other Eurobanks had never invested in other foreign money market assets, and probably would not have done so if the Eurodollar market had not existed. Dollar time deposits in Eurobanks had the advantage against other foreign short term assets of not entailing costs for covering the exchange risk, and hence enabled the US investor to earn the full differential between foreign and domestic rates for comparable short term dollar investments, (7:14).

Turning to the effect of the growth of the market on capital inflows, the most striking effect has been the transfers of Eurodollars by US branch banks to their head offices. Although the Eurodollar rate may be higher than that obtaining in the domestic market for deposits or in the Federal Funds market, the overseas sources has proved profitable, (a) because of sheer availability - the restrictions on deposit rates under regulation Q and other features of the current monetary stringency in the US have caused the parent banks to look abroad; (b) because Eurodollars have not been required to be backed by reserves: since reserves are required for domestic deposits this raises the effective interest rate on those dollars which a bank may lend; since reserves earn no interest; (c) the transfer of funds to the head office, may involve the switching of liabilities from a current to a deposit account, since the original dollar deposit may be held with the head office on current account. This results from the fact that since

Eurodollar deposits are so volatile, they are normally backed by current account balances in the US. However, when the holder is its own foreign branch the parent knows the exact term of the deposit and can back it with a deposit account. This reduces the reserve requirements and strengthens liquidity, (see 1:61); (d) US banks prefer to concentrate their competition for deposits in the Eurodollar market since a rise in Eurodollar rates affects only a small part of their total deposits, whereas a rise in domestic rates would increase the cost of all their deposits: they are thus able to extract more producer surplus from the US depositors; (e) some overseas branches take on balances in excess of immediate needs and place them in head office account - the motive being to accommodate important suppliers or maintain market relationships.

In addition to this inflow of funds to US head offices from their overseas branches, foreign commercial banks have also turned to the Eurodollar market for funds for operations in the US: particularly for transactions purposes. These include: (i) call loans to security dealers and brokers (outstanding loans of agencies and branches of foreign banks in New York to securities dealers and brokers have ranged between \$700-1,000 m. in recent years); (ii) placements in the Federal-funds market, particularly over the week-end; (iii) large loans to corporations (short and long term loans of foreign banks to corporations in the US have been estimated at \$500 m. at the end of 1967); (iv) commercial operations in the US by foreign banks, particularly those with agencies or branches in the US; without the market, it is likely that these banks would have drawn much more on their banking correspondants in the US to finance their financial operations, or alternatively they might well have expanded less; (v) working and commensurate balances held by foreign banks in their accounts with US banks as a necessary part of the international banking operations with the US, coping with the inflow and outflow of Eurodollars and other foreign exchange: the opening and closing balances of these accounts remain however negligible in comparison with the turnover. Apart from these transactions purposes, there is also a precautionary holding

of dollars by the Eurobanks in the form of reserves to guard against sudden withdrawals of dollars. The need for such reserves has remained modest, since placements of call money with other foreign banks can serve the same purpose. However since accepting foreign banks employ most of this call money in the US for their own operations in the American money and loan markets, the reserve requirements of Eurobanks could be argued to indirectly increase foreign private holdings in the US. Klopstock estimates that in the light of all these factors, foreign private holdings in the US would be \$3.5 b. less in the absence of the Eurodollar market. (7:16).

To sum up the Eurodollar maybe thought to have had an overall positive effect in the US both in terms of reducing the outflow of funds to US banking branches and corporate subsidiaries and to foreign demanders of dollars, and in terms of increasing the inflow of dollars from the overseas branches of US banks plus the inflow into the US from the Eurodollar market to foreign banks in the US demand dollars for transaction and precautionary purposes. There is some reverse pressure, increasing the outflow of funds from US residents seeking higher interest rates, and perhaps (though this is not mentioned in the literature) decreasing the inflow of funds from overseas subsidiaries: but the balance seems clearly in favour of an improvement to the US. (This would register itself as an increase in gold and official holdings of foreign currencies, and/or a net improvement in the foreign liabilities/foreign assets account. Foreign liabilities are dollars held abroad, foreign assets are overseas currencies held by US residents.) It should also be remembered that the dollar market appears to have shifted at least some dollar deposits from the hands of official monetary institutions to private holders thus reducing the immediate danger to gold.

The effect of Eurosterling on the UK BoP is very similar to the above, though far less well attested, save the UK Exchange Control regulations prevent the

outflow of UK funds into the Eurosterling market, i.e., prevent UK residents depositing sterling in banks outside the UK. The effect of Eurodollars on the UK payments balance is essentially neutral - if we leave aside the commissions earned on the Eurodollar transactions undertaken in London. Either the increase in liabilities of UK banks in foreign currencies are registered as claims in foreign currencies as soon as they are re-lent to foreigners, or, if the Eurodollars are converted into Sterling, the dollars may be (a) surrendered to the Bank of England's exchange equalisation account in which case the claim in New York has been transferred from the ownership of a UK private resident to that of the E.E.A; the transaction must be covered forward under Exchange Control Regulations, so that the improvement to E.E.A reserves now is balanced by a deterioration in the E.E.A's forward position. Thus each transaction is self liquidating, but when switching into and out of Sterling continues for some time in one direction, the reserves can be changed by considerable amounts; (b) Eurodollars may be sold to a foreigner for Sterling, in which case this reduces liabilities to foreigners, but since again forward cover must be provided, there is an increasing foreign liabilities at some future date; (c) the Eurodollar may be sold for Sterling to some UK private resident (e.g. one London Bank to another) but in this case the claim on the New York bank is merely transferable from one UK resident to another. There is no change in the Balance of Payments. (1:70)

Eurodollars and Domestic Monetary Policy.

The development of the Eurodollar market has weakened the control of the monetary system by central banks in a number of ways:

1. Weakened control over the volume of liquid resources in the money market: i.e., over the money supply. If a central bank is operating monetary policy on the basis of restricting money supply, domestic commercial banks may borrow on the Euromarket, swap into the domestic currency, and thus obtain an additional cash base for the international expansion of credit and bank deposits. The US banks, of course, do not have to swap: they may use dollars borrowed from a

Eurobank as such a cash base, with the additional advantage that they are not required to be backed by reserves. In Britain this is less of a problem partly because the commercial banks are required to observe the same cash (8%) and liquidity (28%) ratios on all deposits, including foreign currency deposits. Partly, too, the Bank of England has strong control on the overall money supply, and because of the break between the domestic monetary policy and foreign exchange policy which is enabled by the exchange equalisation account, the bank can follow policies aimed at the domestic money supply without regard to its possible effect on the exchange rate and Balance of Payments. Other countries without this insulation, are driven to manipulate the forward exchange market in particular, in order to control Eurodollars. Foreign exchange tactics are pursued for purposes quite other than foreign exchange policy.

The UK may still be affected indirectly on this score, in that the non-clearing banks have no such reserve requirements, and may onlend swapped Eurodollars to local authorities and finance houses. This expands credit, raises the level of economic activity, and thus indirectly expands the amount of deposits within the clearing bank system. (1:99).

2. Weakens control over the volume of credit in the economy. An official policy of credit restriction by open market sales of securities, or directives to the clearing banks, can be countered through the Eurodollar market. We have already mentioned the ability to non-clearing banks to onlend to local authorities and finance houses such as hire purchase companies. These borrowers may themselves obtain loans in foreign or local currency from overseas banks that obtain their underlying balances in the Eurodollar market. Some banks may substitute dollar loans for local currency loans to certain customers, thus freeing local currency resources for use domestically. There is a substitution effect. Lastly, banks and corporations may counter credit restrictions by pulling back funds from the Eurodollar market. (7:20) It is interesting in the light of the above, that in the first quarter of 1965 there was large

swapping of Eurodollars into sterling, and simultaneously there was a very rapid expansion of bank lending to such an extent that the authorities imposed a 5% growth limit on lending by all banking institutions. (1:98)

Both the Bank of Japan and the Bank of Italy found their credit restrictions frustrated by large inflows derived from the Eurodollar market, and both the West Germans and the Swiss have had similar though less severe experience of this. (5:114-5)

3. Weakens control on the structure of national interest rates. An increase in national interest rates, will both divert demand to the Eurodollar market for the reasons outlined above, and increase the supply of Eurodollars in the form of short-term arbitrageurs entering sterling through the Eurodollar market. Even if the switch of demand to the Eurodollar market has the effect of raising the interest rate on Eurodollars, this rise is unlikely to meet the rise on the domestic market, and will certainly give rise to increased credit as discussed above. In the UK tight money may turn banks not merely to the Eurodollar market but also to Eurosterling, certainly as far as finance companies are concerned, (See Brian Oliver in Westminster Bank Review, August 1967).

The position in the US is not so clear. One of the main criticisms of the Eurodollar market in the US has been that it has been undermining the national tight money policy. As interest rates moved up after mid-1967, so did the borrowing by US banks to the Eurodollar market. From a total of \$3 b. at the end of June 1967, they rose to \$7 b at the end of 1968, and to \$10 b by mid-April 1969. The reasons for this turn to the Eurodollar market was that the market interest rates had moved above the 6 $\frac{1}{4}$ % that the banks were allowed to offer under regulation Q, and that funds had turned away from the banks. Between December 1968 and April 1969 outstanding certificates of deposit at the large banks had fallen by \$5 b.

Now there is no immediate increase in deposits as a result of the turning to the Eurodollar pool. The ownership of a dollar deposit is simply being shifted

around the banking system. The only way in which bank reserves are increased is because the required reserve holdings against deposits are reduced. The reserve requirement for US banks is $17\frac{1}{2}\%$ for demand deposits and 6% for time deposits. As we have seen, there is no requirement for reserves for dollars borrowed from overseas banks. Geoffrey Bell argues that the reserve saving is small and easily capable of being offset by the Federal Reserve either through open market sales of Government securities, or through an increase in reserve requirements against Bank deposits. (Times 21.4.69)

An alternative effect was put forward by Governor Andrew Brimmer in a speech in New York on 8th March 1969. He argued that the Eurodollar market had the effect of prejudicing those US banks without overseas branches during the period of domestic tight money. Those international banks with overseas branches can deflect the squeeze increasing the impact of the squeeze on the rest of the banking system.

It is not impossible for purely domestic banks to have access to the Eurodollar market through a number of brokerage and other activities. This is an a priori argument against Brimmer, though a posteriori little advantage has been taken of these facilities. Bell, however, suggests that quite apart from this Brimmer's argument is the opposite of the truth. His view is that "there is a certain speed at which the banking system can adjust to a shift towards tight money The existence of a cushion of Eurodollars acts as a safety valve for the system and perhaps allows the Federal Reserve to force a faster run-off of CD's (bearing on the large banks) and consequently a more rapid move from an easy to tight policy while reducing the risk of creating disorderly market conditions". (ibid.) The disorderly conditions he refers to might be brought about by the forced sales by the large banks of investments to compensate for their loss of CD's. The Federal Reserve would then be forced to intervene in the market to supply reserves or alternatively raise the ceiling under regulation Q - thus improving the competitiveness

of the banking system. These disorderly conditions might be expected to hurt the smaller banks more than the larger.

Thus both arguments which criticise the Euro-dollar market for its effect on monetary policy in the US appear not to be substantiated. Indeed there may be considerable pressure for banks to increase rather than diminish their reserves. For one of the consequences of the turn by US banks to the Eurodollar market, either through their branches abroad, or directly, is to raise the Eurodollar rate. This means, that if US banks are unwilling or unable because of regulation Q to raise their rate on Certificates of Deposit (CD's) non-resident time deposits will be run down, the balances being placed instead in the Eurodollar market. This tends (though it is not a necessary tendency) to mean that foreign held balances will be held on demand deposit rather than time deposit, and since demand deposits require a higher reserve base than time deposits, this will raise the reserve requirements on the US banking system. (1:107).

It should be noted that economists and bankers are far from agreed on the effects of the Eurodollar on US monetary policy. With the growth of the Eurodollar in importance, the reserve non-requirements assume greater significance, and there is the further question of pyramiding in the market. Indeed on 26th June 1969 the Federal Reserve moved to moderate the flow of Eurodollars between UK banks and overseas banks and US branch banks. They proposed a 10% reserve requirement on (a) borrowing by US banks from their branches abroad to the extent that these exceed the daily average amounts outstanding in the four weeks ending 28.5.69; (b) branch loans to US residents to the extent that these exceed either the amount outstanding on June 25th or the daily average of the amounts outstanding in the four weeks ending May 28th; (c) borrowing of any sort by US banks from foreign banks. The causes of this move were said to be (a) the evasion of tight money by US banks; (b) the disadvantage to which smaller banks have been

made liable as discussed by Brimmer; (c) the effect of the US situation on European interest rates via the Eurodollar market, a point we will discuss below. (Times B.N: 27.6.69)

While the implications of the Eurodollar market for US monetary policy are still ambiguous, this is not so for other countries, as far as the money supply, credit policy and interest rates are concerned. The principal actions taken by governments against these unwanted effects on monetary policy may be classified as follows;

(a) prohibition or restriction of credit derived from currency loans by domestic banks to domestic corporations.

(b) restrictions on corporate borrowings from foreign banks.

(c) prohibition or limitation by ceiling of the ability of domestic banks and corporations to place dollar acquisitions in the market.

(d) restrictions on convertability of dollars acquired in the Eurodollar market into local currency, either in form of prohibition, or dis-incentives such as restriction of covering such swops in the forward market.

(Italy: special permit for convertability (5:123)).

(e) restrictions or reserve requirements which compel or induce banks to re-export any balances accepted in the market; for example banks may be required not to acquire net liabilities in foreign currency, (7;21-2), as for example in Italy post-August 1960. (5:121).

(f) making specific reserve requirements for deposits derived from borrowing in the Eurodollar market. The US June 1969 proposals have already been mentioned. The UK cash deposit scheme is also a relevant example; the Bank of England can (a) call for a cash deposit upon which the Treasury bill rate or lower will be paid against sterling deposits taken from non-residents; (b) require a higher percentage of cash deposits on those deposits recruited by the non-clearing banks from overseas residents. (It also limits ability to switch into sterling as mentioned in (d) above. (1:100-102) Japan by mid-1962

required 20% of domestic use dollar deposits be held in liquid form. (5:122)

(g) intervening in the forward market to change the cost of cover and therefore the relative benefits of arbitrage via the Eurodollar market. cf. US in 1961 (5:121).

These forms of intervention undoubtedly can influence the effects of the Eurodollar market on domestic monetary policy. It is worth recalling the point made by Klopstock on the limits of this form of government action. He writes: "The efficacy of the controls and restrictions should not be over-estimated. The international economy is dominated by multinational corporations financed by banks whose networks of branches or affiliates stretch over several countries. In such an environment, controls applicable only in a few countries or to a limited group of financial institutions do not always work well. And rigidities of interest rates in domestic loan and deposit markets often cause funds to move through the market perversely, contrary to central bank objectives and despite appropriate regulations." (7:22) The erosion of controls brings the international capital market closer to that assumed by Mundell, i.e. one characterised by perfect capital mobility. He has shown that in this situation, under fixed exchange rates, capital mobility internationally prevents open market operations from affecting the interest rate and the level of income in a country sufficiently small to have only a negligible influence on the world level of interest rates. (9:35)

We have spoken up to now of the principal instruments of monetary policy: credit control, control of the money supply and interest rates. The Eurodollar market has served to weaken other instruments of monetary policy as they relate to the exchanges. They are as follows:

1. Less control over the financing of unwanted imports, by credit control of the domestic economy.
2. Less control over the flow of short-term funds. In Britain for example where each bank has a maximum limit fixed for its external commitments, Eurodollars are not included in the limit.

3. Greater ease of gold purchases for hoarding or speculation. (5:114)

To sum up, it would seem that the Eurodollar market is a challenge to the economic management of the domestic economy, but that this challenge was less for the US than it is for the borrowing countries. There is an assymetry of effect. Although governments and central banks have taken steps to counteract the erosion of the effectiveness of the instruments of monetary policy, nevertheless the internationalisation of both banking and non-banking corporate activities to some extent circumvents such domestic policies.

International economic integration and Eurodollars: Internationalisation of the short-term capital market.

From what has been said already, it is clear that the rise of the Eurodollar market is both a manifestation of and a spur to the process of international economic integration. It has expanded liquidity for trade and investment purposes internationally, it has significantly widened and 'perfected' an international money market, and it has consequently strengthened the dollar.

We have already discussed the impact of the market on international liquidity. Up to 1/4 of world trade is now financed through the Eurocurrency markets, and the use of the market is also extending to longer term investments with the loans being rolled over. With total world reserves standing at \$76.3b. at the end of 1968, and with Eurocurrency market volume estimated at \$30b. in June 1969 as against comparable figures of \$71.3b. and \$12b in mid 1967, the increasing significance of this form of currency in international economics can be appreciated. Since the majority of Eurodollars turn over more than once a year, they can be seen as significant financiers of international trade, with world imports in the last quarter of 1968 standing at an annual equivalent of \$232.5b, and world exports at \$242.1 over the same period. Against this we should set the consideration that Eurodollars are subject to double counting; but the sums are still considerable

and rapidly increasing. (Source: International Financial Statistics, June 1969, p.32 - 3).

As far as the international money market is concerned the Eurodollar market has been working to remove some of the imperfections that still exist. Perfect capital mobility requires as a pre-requisite the absence of obstacles to international capital movements, i.e. convertability. Put more generally, assets of the same class in different countries should be perfectly substitutable, and should apparently be highly responsive to changes in their relative interest rates. Take the class of assets of time deposits. Time deposits of two prime name banks are not as close substitutes as those of two prime name banks located in the same country. The principal reasons for this imperfect substitutability are: (i) differences in currency denominations; (ii) inter-country differences in the cost of exchanging bank liabilities for other assets; (iii) other factors of product differentiation: preferential customer-loan relations, business hours, specific legal characteristics of a particular banks liabilities, and so on. Thus even though there is full convertability between currencies (and this itself has a risk element attached to it) there are still the factors mentioned above which lead to time deposits with banks in different countries yielding different returns. (9:16)

Of the above mentioned factors, undoubtedly the first, the differences in currency denominations, is the most important. Two factors are attached: first the costs of the exchange transaction itself; and second, the possible losses through changes in exchange rates. Nowadays the cost of the money and exchange transfers between currencies is as low as $\frac{1}{4}\%$. The market assessment of the risk of exchange rate alterations is given in the forward market. The interest parities give the interest differentials between two markets, (say London and New York), at which so called covered interest arbitrage will yield nothing either way. These interest parities are still considerable, and fluctuating. In London, the three months forward cover in dollars stood at an

annual rate of $\frac{3}{4}\%$ at the end of October 1968, rose to $3\frac{5}{8}\%$ by the end of November, and was still at $2\frac{1}{2}\%$ by the end of January, (14:150-151).

The Eurodollar market has served to lessen both these factors. There is no cost of exchange, and the cost of transfer is as low as $\frac{1}{8}\%$. Similarly since they are denominated in dollars there is no exchange risk. Certainly some holders of Eurodollars convert them into a domestic currency, and often cover the conversion through the forward market in the normal way. This does not alter the fact that much of the Eurodollar volume is not so converted, and that a borrower in Germany may issue liabilities denominated in US dollars. These liabilities will then be perfect substitutes as far as currency denomination is concerned, with US residents dollar liabilities, and consequently have a high interest elasticity.

Swoboda interprets Eurodollars as an international vehicle asset: his argument is based on the inventory approach to the transaction demand for money developed by Tobin and Baumol. For any purchaser there is always the decision about how much money to hold in hand and how much to invest in interest bearing assets. Internationally buyers of foreign cash (importers, foreign investors) will seek to minimize the cost of their holdings of foreign cash balances. This cost has two facets: the opportunity cost of giving up interest on bond holdings, and the cost of converting domestic bonds into foreign currency. The higher the interest rate the greater is the opportunity cost of holding foreign cash balances.

On the basis of this approach, Swoboda suggests that where an importer trades with a number of countries with separate currencies it will tend to be to his advantage if trade is conducted in a single currency. This lowers the volume of cash balances he has to hold in the foreign currency (increases the velocity of money) and consequently increases the interest income on working balances because a greater proportion can be invested in bonds. The second advantage of a single trading currency is that wealth can be accumulated in assets of fairly

universal purchasing power. There are in short economies of concentration as far as foreign trading currencies are concerned. The currency so established will tend to be that which is of major significance in most countries trade and investment. Such a currency is termed a vehicle currency. (9:9). The dollar is a good example of such a currency.

International vehicle assets are assets denominated in a international vehicle currency and whose common acceptability and substitutability allow asset holders to take full advantage of interest differentials throughout the world in a commonly acceptable currency. The key issue is substitutability. The assets should not only be convertible and denominated in a secure currency, but should be expressed in such a way that the assets belong to the same class.

For Swoboda, Eurocurrency liabilities resemble closely his theoretical international vehicle asset. "They are predominantly denominated in a vehicle currency, the dollar. They are standardised throughout the market area: maturities, terms of deposit, terms of withdrawal, and so forth differ but little from country to country. They occupy an important place in the working balances of economic units in many countries. Owner and debtor of Eurodollar deposits are frequently residents of countries other than the United States." (9:19)

As a result, as Oscar Altman says, "The rate of interest on Eurodollar deposits is thus truly an international rate that reflects the interplay on demand and supply factors in many countries." (13:10) As such it has linked, as we saw in our discussion of monetary policy, the money markets and interest rates of many of the major industrial countries. Again to quote Altman, "in general, interest rates on deposits of all currencies that command a forward premium over the dollar tend to be lower by the amount of this premium than interest rates on Eurodollar deposits, while interest rates on deposits of currencies that stand at a forward discount relative to the dollar tend to be higher by the amount of this discount than interest rates on Eurodollar deposits." (13:10)

It is worth emphasising that this linking of the national monetary structures is not new. The operation of the forward exchange system, as Einzig reminds us, has long provided an interest structure of an international character.

Forward exchange offers lenders and borrowers the choice between operating in the domestic money market or in the foreign exchange market in which they are in a position to grant or secure loans in any currency by means of swap transactions. Yet on Einzig's interpretation, the swap rates on which such transactions were based are not supposed to be basically different from domestic interest rates, being normally determined by the differentials between the national interest rates in the two countries concerned. Swap rates merely reflect the discrepancies between national interest rates. They are not supposed to constitute separate international interest rates. Rates on foreign currency deposits, particularly Eurodollars, are different. They have, for Einzig, a separate existence in theory and in practice from national interest rates. And he quotes the disparity between Eurodollar rates and US rates as evidence. Further he sees forward exchange rates as now subsidiary to the Eurocurrency rates. "Forward exchange rates which in the past tended to adapt themselves to their interest parities based on national interest rates, now tend to adapt themselves to the interest parities based on foreign currency deposit rates. Thus the forward sterling-dollar rate tends to adapt itself to the differential between Eurodollar and Eurosterling rate and tends to fluctuate largely in sympathy with that differential. "(5:77-78) Einzig's theoretical distinction is far from clear, as is the substantial one. The difference between the two mechanisms would seem to be that discussed above in terms of lowering costs of transfer and of denomination exchanges.

One noticeable development in the market, however, has been the increased attempts by national authorities to control the effects of Eurocurrencies on national monetary systems as the result of the very internationalisation which we have been discussing. Because of an assumed adverse effect on monetary policies, imperfections are rapidly being reintroduced into this area of

international capital mobility. They take the form of auto-national controls, and of attempts by 'outer countries' to get the US to impose controls hereself. Thus the 10% reserve requirement proposed by the Federal Reserve bank in June 1969 came as the result of pressure from European central banks to isolate the US domestic monetary system from the Eurodollar market and hence the European money markets. We have already discussed the types of controls which national authorities have introduced to try and insulate their monetary systems from the international one: the attempts to insulate the international system from the US economy is distinct. It presupposes that the international interest rates of the Eurocurrencies are not determined in, as it were, a competitive market, with no unit having a significant influence either on lending or borrowing. Rather it suggests a predominant, determining role for the US domestic rates.

There is no agreement about the independent influence of US rate on the Eurodollar rates. To note that they move together, is still not to assign independence to either of the variables. Swoboda writes: "Interest rates in the United States largely determine Eurodollar rates, and domestic interest rates in outer countries are tied to the latter, although causation also runs the other way." (9:37) Altman would put more emphasis on this counter-causation: "Interest rates on Eurodollars have clearly been an important factor in pulling up short-term interest rates in the US. Short-term interest rates in the major continental European countries have also increased. The pressures of full employment and rising prices in these countries are increasing the demand for money, and the monetary authorities are reacting to these pressures with a tighter monetary policy". (13:11-12). Indeed some economists would argue that such domestic pressures in Continental Europe are initiating in that they pull up rates in the Eurodollar market and in the US, (see:13:12).

Clearly there is a multiple causation operating, and it is as well to clarify which are the major variables which influence and are influenced in this

system:

1. Eurodollar rates are affected by the following US influences:

- i. deposit rates that US banks can pay under regulation Q, and rates at which they lend to foreign borrowers: these two rates largely set the limits within which Eurodollar rates vary.
- ii. short-term investment yields in New York other than on interest on time deposits.
- iii. the forward dollar rate, which largely determines the foreign demand for dollars and to some extent, the supply of Eurodollar deposits at times when covering of forward dollars is regarded as expedient.
- iv. US authorities' attitude to foreign lending.
- v. spot dollar rate, which to some extent determines whether or not Eurodollar deposits should be covered.
- vi. Wall Street trends, i.e. bond prices.

2. Eurodollar rates are affected by the following non-US influences:

- i. the yield on time deposits or on other forms of short-term investments in London and other European centres.
- ii. interest charged by British banks on foreign short-term sterling credits.
- iii. domestic interest rates of countries borrowing Eurodollars on a large scale.
- iv. Central Bank attitudes on lending dollars in the Eurodollar market, both by itself and its banks, and to its banks borrowing in the market.

3. Eurodollar rates affect the rate structure in the US as follows:

- i. the competition of Eurodollar facilities with American short term dollar investment or borrowing facilities.
- ii. provision of facilities for speculation against the dollar.
- iii. influence on the relationship between various maturities within national interest rates.
- iv. influences official policies.

4. Eurodollar rates affect the rate structure in borrowing countries as follows:

- i. competition of Eurodollar facilities with other credit facilities.
- ii. competition between banks.
- iii. use of Eurodollars for speculation.
- iv. use of Eurodollars for arbitrage.

The key factors to emphasise are: lending and borrowing rates of the banks; bond prices; Central Bank policies; spot and forward dollar rates. (see 5: 79-80, 82, 96, 98-99.)

In his 3rd edition of 'the Eurodollar system' published in 1967, Einzig considered the most important determinants of the Eurodollar rate to be the US interest rate and the yield on short term investments in the London money market. Yet, as mentioned above, he saw the US interest rate as setting the limits rather than closely determining the Eurodollar rate, principally because the latter was much more open to international influences. The volume of credit in the US domestic market was c\$500b, as against the then volume of Eurodollars of \$10b. Until Eurodollars became a more significant proportion of total US domestic credit he did not see US national interest rates as necessarily the most important factor. The mechanisms of the insulation is not, however, made clear. Furthermore, not only is the Eurodollar market a more significant proportion of US credit, but the experience of US banks in 1966 when they turned to the Eurodollar market to ease their tight liquidity situation at home, appears to have had a ratchet effect. When the domestic credit situation eased in 1967, the borrowing from branches overseas by US head office banks continued, indicating that the economic distance between the national and international money markets had narrowed. Undoubtedly one of the key factors behind the rise of Eurodollar rate to levels of 12-13% in June 1969 was the domestic credit squeeze in the US, with prime lending rates reaching 8½% in the US, (Times BN. 12.6.69) and borrowing rates being limited to 6¼% on deposits by Regulation Q. US head offices now constitute the major demand factor in the market (\$9.7b of UK banks' external claims were on US residents, the next highest figure for claims being on Japan at only £1.66) and this has made the US domestic monetary situation a far more decisive influence than Einzig suggests. (5:84-5).

Further, the uncertainty surrounding sterling has meant that the London money market is less decisive since it has been considered dangerous to switch from Eurodollars into sterling without forward cover. More important have been (a) US restrictions on overseas capital outflows; (b) the use of Eurodollars as a vehicle currency during currency speculations, notably the Deutsch Mark crisis in May 1969; (c) the use of Eurodollars for window dressing by commercial banks: this is again a primarily US phenomena, corporations being liable to \$10b worth of taxes in mid June 1969, and mid-year window dressing by US commercial banks anxious to increase their dollar deposits, either to meet statutory obligations on to re-assure shareholders, (see Times Business News 12.6.69). Since at least part of currency speculations are conducted by US banking and non-banking internationals, it can be seen that US conditions are crucial. It is not simply a question of the US interest rates, but of domestic and international liquidity positions of US nationals. No non-American demand appears to have such an influence as the factors mentioned above. Thus with modifications to broaden the considerations of interest rates to more general liquidity, it would appear that Swoboda's emphasis on US conditions being the dominating influence on the Eurodollar rates is closer to the truth than Einzig's and Altman's more competitive picture. This difference of emphasis is however partly a function of time. Up to 1966, non-American influences can be considered to have been relatively more important than they are now.

International economic integration and Eurodollars 2: corporate internationalisation

We discuss the impact of the Eurodollar market on international firms more fully in an accompanying paper, IF 2. Some brief comments are here in order.

The most direct impact has been on the internationalisation of the US banks. Some already had branches operating overseas, but others have established overseas offices in Europe, and especially in London, for the express purpose of

dealing in Eurodollars. By the end of 1967 foreign banks and branches in London numbered over 80, with American branches the single most important market participants. They accounted for over one half of all external short-term dollar assets reported by banks and foreign branches operating in Britain, (2:15) and for $\frac{1}{3}$ of

Once established, US branch banks have been at a competitive advantage vis a vis other banks. First they can participate in the Eurodollar market with some what less risk than banks whose head office is not in the US since US dollars are their native currency, and deficiencies on either deposit supply or loan demand can be made up through the parent bank subject to Federal Reserve guidelines. Second, the US major operate offices throughout Europe, and this network provides a marked advantage in collecting and placing Eurodollar funds. Third, the US branches have close links with the US based multinational non-bank corporations who have come to play a central role on both the supply and demand side of the Eurodollar market, (2:15).

This internationalisation of the sphere of operations by still national units incorporated in the US, somewhat minimises the claims made by Swobada that the development of Eurocurrency markets distributes denomination rents, i.e. those returns which intra marginal banks of the centre country would not have earned were their liabilities deonminated in another currency. (9:14) With US overseas branches playing an increasingly important role in the Eurodollar market, these rents accrue abroad, but to US economic units.

The impact of the Eurodollar market on non-banking US corporations has been more in terms of increasing their flexibility rather than in providing the decisive force for them going international. They have found the following advantages in the Eurodollar market:

(a) increasing financial flexibility in the face of domestic monetary policies of any nation which conflicts with corporate plans. (7:22)

(b) lower costs of transactions finance, both in terms of international trade and investment payments, and in terms of working balances for other purposes. (7:14; RTZ; German firms investing in udc's 5:70, 97)

(c) raises returns on short term surplus funds (Squib in Ireland)

(d) lowers the cost of speculation (cf Deutsch mark speculation in May. Anthony Thomas in Times B.N. 12.6.69)

(e) availability of finance in spite of US controls on overseas investment: this is a sub-heading of (b). The emphasis is on availability, since US subsidiaries are able to raise money on the Eurodollar market far in excess of what they could raise on domestic money markets. (2:10)

To sum up both sections on the effect of Eurodollars on international economic integration, two points are clear: first that the Eurodollar market itself, has played a crucial part in the development of international economic sub-systems by the encouragement it has given both to the development of an international banking network, and to the further expansion of international corporations. These sub-systems (capital markets/international firms) operate in many nations and have a size and flexibility which makes them capable of circumventing purely national policies to a greater or lesser extent. The effects of such developments is to further integrate the national economic sub-systems into a more coherent international system.

Second, within the context of this process of economic integration, the Eurodollar market has served to strengthen the position of the US capital nexus in this international system, in the following ways: (i) it has strengthened the dollar in its role as a vehicle currency; (ii) the Eurodollar market is in a sense an extension of the US domestic money market, with the economic forces in and of the US playing a dominant role in determining

the Eurodollar rates; the US has a position of dominance in Perroux's sense of the term, exerting a greater influence on the market and thence on the monetary systems of foreign countries than the influence which the external factors exert on the US: it has thus served to bring other economies more into the orbit of the US economy; (iii) it has furthered the internationalisation and competitiveness of US banks; (iv) it has allowed the continued expansion of US non-banking corporations abroad.

This process of internationalisation also exposes the constituent systems and sub-systems to increased risks, especially in as far as monetary authority is not expanded simultaneously. As Swobada points out, "The interdependence of capital markets throughout the world makes the international co-ordination of economic policies, or rather the definition of rules of the game, more necessary than ever." (9:37). It is to this subject of the risks implicit in the development of the Eurodollar market that we now turn.

International Instability and the Eurodollar market.

The Eurodollar market has grown unofficially; it does not have global regulations imposed either by monetary authorities or by the institutions which operate the market. Accordingly, many of the characteristics of national money markets which have been developed to ensure the security of operations are not mirrored on the Eurodollar market. This disparity has caused concern both amongst bankers and monetary authorities, particularly because Eurodollars are traded in such large amounts often along a chain of borrowers, and in such a way that lenders may be quite unaware of the final or indeed many of the intermediate destinies of their loans.

The principal features characteristic of national money markets which are not present formally in the Eurodollar market are the following:

1. There is no legal reserve requirement on Eurodollar liabilities. It is not clear to what extent Eurodollar borrowings have served as a base

for multiple credit creation for individual banks: though there are examples of banks borrowing short to lend long (see the problem of rolling-NW 10:14). Given the small margins on Eurodollar transactions this is one way of improving the margins: the dangers of this, however, were shown in the Hugo Stinnes Bank failure, an old established bank which was placed in the hands of its creditors in October 1963 because it could not meet its Eurodollar obligations owing to foreign creditors. An even greater collapse came shortly afterwards to the US firm Allied Crude Vegetable Oil Refining Corporation, which brought down with it a large member of the New York Stock Exchange. (10:16)

Another result of the narrow margins is that inter-bank loans tend to be made by those institutions which are free to establish their own reserve and liquidity requirements, and which can earn a return on these reserves on the short term funds market. Thus English accepting houses have no published conventional definition of liquid assets nor do they observe a common minimum ratio of liquid assets to deposit liabilities. In fact their ratio of call money and discounts to deposit liabilities is high (up to 40-50%) but these short term assets do earn a reasonable return. Commercial banks in the UK are clearly at a competitive disadvantage here. Again the US branch banks have no reserve requirements, and although a large proportion of their Eurodollar liabilities are kept on deposit with U.S. head offices, these liabilities (did not require reserve backing) until the recent Federal Reserve proposals were put forward. With margins so fine, there is a danger, emphasised by orthodox monetarists, that proper reserves will not be kept.

2. There is no official lender of last resort. Usually this function will be fulfilled by the central bank of the EuroBank's domicile, in cases where the private bank itself was not able to raise the necessary dollars in the Eurodollar market or in the foreign exchange market. The Central Bank would be unable to play this role where it lacked adequate gold or foreign

exchange reserves: it would then have to turn to the I.M.F. or set up inter-country swap arrangements. In normal business conditions, there are clearly adequate back-stops to ensure that the failure of one link in a Eurodollar chain does not set off a whole line of defaulting. It is in times of international financial crisis that the greatest dangers might occur, and indeed countries might even encourage defaulting as part of economic politics.

3. A number of Eurobanks do not cover their Eurodollars forward. This may be because they regard their own currency as being as strong as the dollar, so that any unforeseen shortage of dollars could be met without loss from conversions out of national currency. Again it may be the pressure of the market which leads marginal banks to pare down the cost of forward cover in order to make significant returns on Eurodollars transactions. (12:549)

4. Eurodollars are often lent with what some orthodox bankers have regarded as unsound safeguards. The loans are largely unsecured for very considerable sums. For inter-bank loans, few questions are asked and little information is offered.

Only for the less important commercial customers may Eurobanks insist on knowing the purpose for which they are required. Particular customers are limited by lenders, but as Einzig says, "the safeguard by limits is purely illusory. For there is no exchange of information between banks by which they could have an idea about the total amount of outstanding credits of any particular borrower. The Bank of England and other Central Bank receive monthly returns indicating the total granted by each bank to each country, so that the authorities are in a position to warn their banks if the totality of loans to a particular country appears to be excessive. There is no such method of pooling information about total borrowing by individual firms." (5:66-67) This difficulty is only compounded by the lack of uniformity in the financial statements among foreign borrowers. This lack of thorough investigation into credit-worthiness is perhaps reflected in the fact that the prime responsibility for the market is still in the hands of exchange traders rather than the bank's

management. One banker is quoted as saying: "The exchange department is an empire unto itself and it is difficult for management to interfere except to express concern about the high volume. But the trade tell us that they can make money in Eurocurrencies with virtually no risk, so what can we do?" (12:547) The market is in short built on a trust of the credit-worthiness of well-known banking and non-banking corporations.

Thus the main risks involved concern the reserve position, the absence of a lender of last resort, the foreign exchange risk with uncovered dealings, and the lack of conventional banking safeguards used in making the loans. The delicacy of the position can be gauged by the fact that for some banks the volume of Eurocurrency transactions may be as much as four times capital and reserves (12:549) Traders regard these risks as minimal since they see no possibility of a 1930's type of depression. All one need conclude at this point is that in the case of a depression caused by factors outside the Eurodollar market, the vulnerability of the Eurodollar system to default would undoubtedly contribute to a worsening of the global situation. (see 1:80 for note on the failure of the Credit Anstalt in Austria in 1931) Even without a depression some bankers see the danger of a loss of confidence in the dollar as the largest risk. As Stopper of the Swiss National Bank writes: "Any crisis of confidence could start funds pouring from the Eurodollar market into a small number of Western European central banks, facing them with serious external and internal problems. Countries heavily indebted in the Eurodollar market could incur substantial reserve losses which, in turn, would greatly stimulate speculation. The more extensive the movement of funds, the more unforeseeable and detrimental would be the consequences for the world's monetary system, for international trade and economic prosperity." (11:6) Thus the market is regarded as both vulnerable in itself, and to some extent increases the vulnerability of the world monetary system by providing additional facilities for speculators, and accentuating inflationary booms (5:63).

Undoubtedly some of this vulnerability could be mitigated if there was an effective institution of control. As yet no such institution has emerged. Central Banks and the BIS have been working towards some form of co-operative agreements for control. Thus since 1965 particular pressures on the Eurodollar market, notably with the window dressing at year ends by commercial banks, have been offset by official supplies of dollars to the market. At the end of 1966 about \$800m was given to the market. The Swiss National Bank provided \$470m directly and through the BIS, while the BIS placed a further \$275m of which \$200m was obtained through a swap arrangement with the US Federal Reserve. A number of other central banks took steps to limit the volume of Eurodollars repatriated by their banks at year ends. (cf. BIS 37th Annual Report. Basle 1967 p.144). Again in 1965 the Italian Central Bank and the BIS moved resources into the Eurodollar market, the former via its commercial banks, and this too served to stabilise the rates. (1:123).

Yet this is still far from the kind of official supervision which would be necessary to forestall massive defaults on the Eurodollar market as the result of an international monetary crisis. On their own the European Central Banks are not capable of performing such a function. The IMF lacks the power to do this, and the BIS lacks sufficient resources. The Federal Reserve Bank is in a stronger position: it could act as a lender of last resort, since the US authorities have the power to create dollar deposits, and it could realise this by means of a swap or loan arrangement with an appropriate international institution.

Two questions arise, however. First, whether the US and the other Central Banks are willing to negotiate such measures of control given the effects that Eurodollars have both on national and international monetary situations. It is one of the most striking things about the recent history of the Eurodollar

market that although there are a variety of possible policy instruments open to the US, they have been most unwilling to impose restrictions on the market until their final moves in June, 1969. Secondly, apart from the willingness of central banks to co-operate, the question still remains as to whether measures are possible which could substantially strengthen official control over the market. The two questions are, of course, related. We have noticed at a number of points the unregulated character of the market, and the ability with which operators in the market and particular borrowers and lenders have been able to circumvent controls. No doubt a truly international monetary institution could impose a stricter set of standards, and assure a greater effectiveness for official measures. But this requires a degree of political flexibility and abnegation of national identity of which there is no indication, certainly if we are to judge from the history of the negotiations on international monetary reform. It may be not until a crisis has occurred that nations will be willing to give up their official monetary identity and submit to an international monetary institution to regulate the market. This will be taken up in a later paper.

Eurodollar References

1. E. Chalmers. Readings in the Eurodollar. Griffith 1969.
2. Chase Manhattan Bank. Eurodollar financing. 2nd ed. Sept. 1968.
3. H. Christie. "Eurodollars and the Balance of Payments" in: The Banker. January 1967.
4. E.W. Clendenning. "Eurodollars: the problem of control" in: The Banker. April 1968.
5. P. Einzig The Eurodollar System. 3rd ed. McMillan. 1967
6. P. Einzig Foreign Dollar Loans in Europe.
7. F.H. Klopstock The Eurodollar markets: Some unresolved Issues (Essays in International Finance No. 65.) Princeton 1968
8. Morgan Guaranty The Eurodollar Market
9. A. Swoboda. The Eurodollar market: an interpretation. (Essays in International Finance No. 64) Princeton 1968.
10. Bankers Trust The Eurodollar Market 1964
11. Euromoney June 1969
12. A. Robert Abboud "Eurodollars in Today's World Markets" Bankers Monthly Magazine. 15.2.64. pp.28-40 reprinted in L.C. Nehrt (ed) International Finance for Multinational Business. Int. Textbook Co. 1967.
13. O. Altman "Eurodollars: some further comments" IMFSP. March 1965. pp. 1-16
14. F. Hirsch. Money International. Allen Lane Press. 1967.
15. G. Bell. "Shock Waves from the Eurodollar" Times BN 21.4.69
16. O. Altman "Foreign Markets for Dollars, Sterling, and Other Currencies," IMFSP. Vol. VIII. 1960-61 Dec.1961
17. O. Altman "Canadian Markets for US Dollars." IMFSP Nov. 1962.

Eurodollar Bibliography

1. E. Chalmers. (ed) Readings in the Eurodollar. Griffith. 1969.
2. Chase Manhattan Bank Eurodollar Financing. 2nd ed. Sept 1968.
3. P. Einzig. Foreign Dollar Loans in Europe.
4. P. Einzig The Eurodollar System. 3rd ed. Macmillan 1967.
5. Euromoney. 14 Finsbury Circus, E.C.2. No. 1 June 1969 -.
6. F. Hirsch. Money International. Allen Lane, 1967. pp.168-173.
7. R.H. Klopstock The Eurodollar Market. Some unresolved issues. (Princeton Essays in International Finance No. 65) 1968
8. G.C. Martenson The Eurodollar Market. New York 1964.
9. Morgan Guaranty. The Eurodollar Market
10. R.E. Stevenson "The Eurocurrency Market" Journal of the Institute of Bankers. August 1964.
11. A. Swoboda The Eurodollar Market: an Interpretation. (Princeton Essays in International Finance No. 64) 1968
12. A.R. Abboud. "Eurodollars in Today's World Markets" Bankers Monthly Magazine. 15.2.64. pp.28-40. reprinted in L.C. Nehrt (ed) International Finance for Multinational Business. Int. Textbook Co. 1967.
13. O. Altman "Foreign Markets for Dollars, Sterling, and Other Currencies." IMFSP. Vol. VIII. 1960-61 pp.313-352 Dec.
14. " "Canadian Markets for US Dollars" IMFSP Vol IX 1962 November, pp. 297-316
15. " "Recent Developments in Foreign Markets for Dollars and Other Currencies." Vol X (1963) March pp.48-96 IMFSP
16. " "Eurodollars: Some further comments" IMFSP March 1965 pp.1-16
17. Bankers Trust The Eurodollar Market 1964.
18. G. Bell "Shock Waves from the Eurodollar" Times BN. 21.4.69
19. E. Bloch. Eurodollars: an emerging international money market New York University 1966.
20. Bank for International Settlements Annual Reports. 1963
21. Bank of England Quarterly Bulletin. "UK Banks External Liabilities and Claims in Foreign Currencies." June 1964. reprinted in ed Chalmers (1)

22. G.L. Bell "Credit Creation through Eurodollars" Banker August 1964. reprinted in Chalmers (ed) (1)
23. H. Christie. "Eurodollars and the Balance of Payments "Banker January 1967. reprinted in Chalmers (ed.) (1).
24. Federal Trust for Education and Research. "The European Capital Market" 1967.
25. A.R. Holmes and F.H. Klopstock. "The Market for dollar deposits in Europe. "Fred. Reserve Bank of New York Market Review. Nov. 1960.
26. N.O. Johnson Eurodollars in the New International Money Market. First National City Bank. New York. 1964.