

Nature and Functions of an Irish Money Market

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INTRODUCTION THE DEVELOPMENT OF FINANCIAL INSTITUTIONS

The development of an economy can be usefully regarded as having two aspects. The first is the production and allocation of goods and services and the second is the emergence of a financial system. The financial structure consists essentially of rights or claims, and of the institutions which record and manage those claims. This accounting function and the related expertise of devising claims to suit the varying needs of savers and investors are the unique contributions which financial institutions make to the functioning of a developed economy.

Money and Other Financial Obligations

The monetary system itself is a system of accounts¹ in its accounts is recorded the indebtedness of the monetary authorities and the commercial banks to each other and to members of the public. Changes in indebtedness are brought about by transfers of goods and services. The public, the monetary authorities and the banks adjust the record of their indebtedness *vis-a-vis* one another by means of transfers between the accounts constituting the monetary system. Among the goods exchanged are financial claims. These are rights to the payment of a specified sum of money² at a certain time in the future or on the occurrence of a given event, to the payment of money at a specified rate over time or to a combination of these.

In the rudimentary economy, economic units are largely self-supporting. Goods and services may be exchanged but when such exchange takes place it takes the form of barter: one good is exchanged for another or for a service of corresponding value. Financial institutions have no function to fulfil in such an economy. Neither have they a function in the simplest kind of monetary economy, in which the money used is itself a commodity. By definition in this economy goods are exchanged for an amount of the commodity-money, which has a value as a commodity corresponding to the value of the good for which it is exchanged. As far as exchange transactions are concerned, there can be no creation of

¹ Literally in the case of current account money and figuratively in the case of currency. The possession of a document (currency notes or coin) is evidence of a debt owed by the monetary authorities to the individual, though accounts are not kept between the monetary authorities and private citizens in respect of currency outstanding.

² For the sake of convenience, we say "sum of money" instead of a claim on the monetary authorities or a claim on the banks. Money is, of course, itself a financial claim but, for legal reasons in the case of currency and practical reasons in the case of current accounts, it is treated by its holders as an asset yielding a direct flow of satisfaction. It is in practice a measure of psychological obligation yielding a direct flow of satisfaction: "the monetary authorities (or the banks) owe me X pounds".

indebtedness of a kind which requires the existence of a financial institution to record its existence

This is not to say that indebtedness cannot exist in either of these two simple economies—the barter economy, in which no money exists, and the commodity-money economy. In both cases goods and services may be exchanged in return for a claim on goods or services in the future. In this case the act of saving is divorced from the act of investment and a primary security³ (that is, a bond issued by a borrower who uses the proceeds of his borrowing directly) comes into existence as witness to the fact that indebtedness exists. The primary security may, of course, have no more formal embodiment than a promise by the debtor to deliver goods or services to the creditor at a certain future date. In any case, the indebtedness in question is incurred and discharged directly by economic units in a manner similar to simple exchange transactions.

Financial Intermediation

Thus, neither the existence of money (of a commodity kind) nor of indebtedness, as represented by primary securities, necessitate the emergence of financial institutions. Such institutions may be envisaged as coming into existence only when the process of financial intermediation begins. This is what happens when the borrower, who issues a bond in the form of a claim on himself, uses the borrowed funds in lending to other economic units. That is to say, the financial intermediary purchases securities for his own portfolio with the money raised by selling claims on himself to other economic units. The securities issued by the financial intermediary may be termed “indirect securities”⁴. They are indirect because they represent a claim by the holder not on the ultimate borrower (the economic unit which uses the funds for the purpose of expenditure on goods and services) but rather on an institution which stands between the lender and the user of the borrowed money.

The process of financial intermediation is important because it represents an improvement in the method of transferring the savings of the community to the investors who employ these resources in production. The work of financial institutions reflects an increase in the sophistication of the financial mechanism beyond the initial stage in which monetary transactions replace barter. The introduction of money facilitates the exchange of goods and services by eliminating the necessity of matching, as in barter, the specific requirements of purchaser and seller. Money, at one and the same time, reflects the need for the developing economy to increase the extent of specialisation in production and facilitates that specialisation. In a similar way, the emergence of financial intermediaries reflects and answers the needs of an economy at a more advanced stage of technological development. They facilitate the distribution and concentration of resources, made available by a surplus household sector, in capital projects which could no longer be financed by individual house-

³ [4], *passim*

⁴ [4], *ibid*

holds or the retained earnings of entrepreneurs. In addition to this, the intermediaries eliminate the necessity for lenders of saved resources to find borrowers whose obligations they are willing to hold in their portfolios. Correspondingly, borrowers do not have to seek other economic units who are willing to lend their savings on terms which suit the particular requirements of the borrower at that moment of time.

The immediate attraction of money for economic units is the fact that it is more readily exchangeable for goods and services than is any commodity not used as money. Money has the quality of liquidity in greater degree than have specific goods and services. Liquidity is also the attribute which primarily recommends the claims issued by financial intermediaries to lenders. The essence of the service performed by financial intermediaries is that their obligations (the securities they issue) have greater liquidity than the assets they hold in their portfolios or that they have other qualities not possessed by such assets. These assets are the primary securities which the intermediaries acquire by lending to ultimate borrowers—to those economic units who use the borrowed funds for the purposes of their own expenditure. What the financial intermediaries do is to replace these obligations of a specific borrower with obligations which represent a share in the liabilities of a wide range of borrowers and which are, consequently, less subject to the risk of default. The security issued by the intermediary represents a diffused claim on the wealth of the community in a manner analogous to that in which money represents a claim on a non-specific part of the whole of the market output of the economy. The reduction of risk in lending which they provide and the greater liquidity of their liabilities are the foundations for the existence of financial intermediaries.⁵ Correspondingly, the operations of financial intermediaries, by facilitating the process of saving and investment, exert a positive and beneficial influence on economic development.⁶

Commercial Banks

The banks are usually the first type of financial intermediary to emerge in the process of economic development. They issue claims on themselves in return for the savings of other economic units. They use the proceeds of their borrowing to purchase primary securities, that is to say, they lend to other economic units and in return obtain a claim on those units. The indirect securities issued by the banks are comparatively free from the risk of default and are a highly desirable security from the liquidity standpoint. They are, in fact, more risk-free and more liquid than the primary securities, the bills, loans, advances and investments, which are their counterparts, so that savers who might not have been willing to lend to the banks' debtors directly do accept the banks' indirect security (a current or deposit account balance) as an asset to hold in their portfolios. Here we have the banks performing the unique service of the financial intermediary—substituting for the liabilities (primary securities)

⁵ [7], p. 95, [5], p. 530, [6], pp. 1-19

⁶ [7], p. 97, [5], p. 530

of original borrowers a homogeneous (and indirect) security which is more attractive to lenders than those liabilities on which it is ultimately based. Specialisation by the banks in their borrowing and lending activities and the wide spread among economic units of liability for the securities the banks hold are the basic reasons why they are able to make a deposit or current account balance more attractive to lenders than lending directly to the banks' debtors.

Extension of the Analysis

The work of the entire range of non-bank financial institutions can be analysed within the framework used above. Each issues an indirect security of a distinctive kind in return for the savings of other economic units. And each employs the funds so acquired in purchasing primary securities from economic units who require loanable funds. The indirect securities issued by the various financial intermediaries each has a distinctive quality which will recommend it to some lenders. And the terms on which each institution is prepared to lend money recommends it as a creditor to a certain class of borrowers.⁷

The refinements of this analysis will not be outlined here since an analysis of financial intermediation in general is not the concern of this paper. But the idea of specialisation of borrowing and lending activities is important in any approach to the question of a money market. A money market may usefully be regarded as further development of the financial mechanism and as representing an advanced form of financial intermediation. It is characterised by the presence of a unique form of indirect security, namely, a claim on an interest-bearing, highly liquid, low risk deposit balance suited to the portfolio requirements of financial institutions and, in particular, to the portfolio requirements of banks.

THE MONEY MARKET DEFINITIONAL

The term "money market", however, is not scientifically exact. Read literally it is misleading since none of its various usages describes a market in which money is the object, rather than the medium, of exchange. Just as in the commodity markets of the economy exchanges of money continually takes place, so also do they in the financial markets. But we should be no more literally correct in describing the market for tea as a money market than we would be in so characterising a market in financial obligations. For this reason, I have attempted in this paper to discuss markets for specific financial assets rather than a "money market" as such. Whenever reference is made to a "money market", it should be clear from the context what are the financial markets referred to by the term.

In some usages, all the arrangements which exist to facilitate transactions in financial assets are described as the "money market". This category is, however, so inclusive that its analysis is proper to the theory of financial development. The term money market is more usually and

⁷ [4], esp. chapter VI

more interestingly applied to the arrangements which exist to facilitate transactions in certain short-term financial assets "Short term" here indicates that the assets concerned which have a redemption date mature in a matter of weeks or months and almost invariably within three years, and that those assets which have no fixed maturity date can be encashed usually in a matter of hours and almost always at less than a week's notice. However, not all short-term financial assets are appropriately regarded as being the object of money-market transactions. The short-term financial assets, which are the objects transacted in a money market, are most usefully defined as those used by financial institutions, and especially banks, as liquidity reserve assets. These assets are usually held by households, also, but the class of short-term financial claims not held by financial intermediaries is best regarded as falling outside the range of money-market instruments.

We have, therefore, a definition of a money market, pragmatically arrived at. It has a homogeneous product and an efficient communications system. It has to do primarily with financial intermediaries and the arrangements which exist to enable them to maintain the liquidity of their portfolios with minimal loss in income. A money market, then, is the set of arrangements and procedures which enable financial institutions to invest in those short-term financial assets which constitute their first-line interest-earning liquidity reserves. Because the flows of money involved in money-market transactions are usually comparatively large, it exerts a major influence on the determination of short-term interest rates.

AN IRISH MONEY MARKET EXISTENCE

A financial institution must choose its assets so that (a) it will be in a position to meet its liabilities and (b) it will be profitable for its owners. Ideally, a financial intermediary would wish to have an exact correspondence between the maturity dates of its assets and liabilities. In the case of institutions like commercial banks, most of whose liabilities do not have a fixed maturity date, a probabilistic portfolio-allocation procedure must be followed: this involves balancing the earning-power of assets against the speed and cost of converting them into money. Generally, the highest-yielding assets will be impossible to exchange for money in a short period of time without major loss of value. Conversely, the assets which can be so converted without major risk of loss will yield a comparatively small income. Nevertheless, such assets are essential for the profitability of the intermediary's operations, since their alternative is non-interest bearing cash. In his search for the most profitable portfolio, a financial intermediary with short-term obligations will therefore wish to acquire highly liquid, comparatively riskless, interest-bearing assets, ranking just below till money and non-interest bearing balances with other banks in terms of liquidity. In Irish banking practice, the first such asset is money at call and short notice, that is, interest-bearing deposit balances with a low-risk institution, repayable on demand or on the

termination of various short periods of time. One approach to the question as to whether a money market exists in Ireland is to ask whether the assets required for satisfactory portfolio allocation at the most liquid end of their balance sheets are available to Irish financial intermediaries.

Existence of an Irish Money Market—The Availability of the Facilities

The merchant banks are a group of institutions with a close interest in the market for short-term securities in the form of money at call and short notice. Their business is such that they wish to purchase short-term securities as liquidity reserves (principally by depositing money at call or short notice with other financial institutions) and to sell short-term claims on themselves (acceptances) in order to provide finance for their customers. In Ireland, the merchant banks⁸ use their London affiliates or the inter-bank (or local authority) market in that city as one source of securities in the form of deposits at call or short notice.⁹ They also discount their acceptances in London. The merchant banks themselves have, however, gone some way towards reducing their dependence on London in that they have set up a market in short-term deposits among themselves. Thus, merchant banks (and other lenders) in Dublin with surplus money can lend it at two or seven days' notice (and on fixed deposit, for longer periods) to other Irish merchant banks, with net cash requirements. The ultimate source of claims on short-term deposits is, however, still London when the merchant banks in Ireland are in the aggregate over-liquid, the surplus money is used (by one or more of the merchant banks) to purchase deposits at call or short notice in London. A small amount of money is held at call or short notice with the Central Bank by these institutions but it is insignificant in size when compared with their holdings in London.

The netting out of money surpluses against deficits (by means of the exchange of money for claims on short-term deposits), which is centred in the merchant banking sector, extends also to branches of foreign commercial banks, finance houses, other licensed banks, insurance companies and some of the larger commercial firms (including Semi-State bodies). Not all of the units in each of these categories participate in the market and, of those that do, most are lenders only. The branches of North American banks are the only borrowers, apart from the merchant banks, accepting deposits of money at call or short notice in the Dublin inter-bank market.

Traditionally, the main Irish users of London money-market facilities were the Associated Banks. These banks are no longer the sole Irish customers of the London money market and the greater proportion of their liquid interest-earning balances relating to their business in the

⁸ There are five merchant banks with offices in the States. They are listed in the "Report of the Committee on an Irish Money Market" published by the Central Bank of Ireland in 1968 (Category B on pages 19-20).

⁹ That is to say, they pay over their temporarily surplus money balances and receive a claim in the form of money at call or short notice in return.

State is now held in Dublin ¹⁰ The Associated Banks still hold in London a substantial amount of money at call and short notice, which may reasonably be regarded as a reserve against their deposit liabilities in the Republic Measured by the amount of money at call and short notice which they deposit in the London short-money markets, the merchant and non-associated commercial banks are, however, now the main Irish users of London money-market facilities

We have, therefore, a situation in which the Irish financial institutions, which have highly liquid liabilities and, therefore, require money-market assets, place a great deal of their short-term money in London This raises the question of whether the facilities available for such investment in Dublin are suited to the requirements of the intermediaries concerned We have already seen that the merchant and foreign commercial banks provide one such outlet This is not, however, used by the Associated Banks, whose money at call and short notice within the country is held with the Central Bank The opportunities available to the large branch-banking institutions for the disposition of liquid reserves are at the centre of money-market arrangements generally, so that a final judgment of whether money-market facilities are available in Dublin depends on the outcome of an examination of the outlets available in this area for the Associated Banks The Central Bank is the only body providing such facilities for the Associated Banks

The Central Bank as a Money-Market Intermediary

The Central Bank of Ireland has recently undertaken new activities in the short-term deposit, bill and Government stock markets

- (a) In the market for short-term deposits, the Bank now accepts money from a number of financial institutions, including the commercial and merchant banks The deposits are repayable at call, at notice of either two or seven days, at one month fixed *plus* seven days' notice and at three months fixed *plus* seven days' notice
- (b) The Bank has taken over the Exchequer Bill issue, which is now conducted on a monthly basis, both to the banks and the public
- (c) The Bank has added a variety of Government stocks to its portfolio, all with a maturity not exceeding three years, out of which it deals actively in both directions

These activities of the Bank are still in their early stages and, on the bill and bond side, have been undertaken for the first time this year They are significant for Irish financial development in two ways First, they constitute a technical improvement in the intermediation process Government short-dated stocks, because of their greater liquidity, are now desirable assets for a wider variety of portfolio investors, and Exchequer Bills, because of their closer maturity dates, should be a somewhat more acceptable home for three-months' money The second, and more important, aspect of these developments lies, however, in the

¹⁰ It is assumed that, other things being equal, it would be appropriate for the Associated Banks to hold in this country a proportion of their money at call and short notice equal to the proportion of their deposit liabilities which relate to the State

acceptance of money at call and short notice by the Bank. By so doing, the Bank has closed the last gap in the range of financial services offered to Irish investors. Hitherto, there was a gap in the range of financial claims available in the country for the employment of surplus cash by the Associated and other commercial banks and the merchant banks. This gap was partly filled, as far as the Associated Banks were concerned, by interest-bearing deposit balances at the Central Bank. It has now been eliminated for all of the commercial and merchant banks by the extension of the Central Bank's deposit facilities as described at (a) above.

What are the technical implications of this last-mentioned change? It represents, in fact, a change from a situation in which some Irish financial institutions were forced by commercial considerations to adjust their portfolio positions by transactions in external currency to one in which such adjustments can be carried out by means of transfers of domestic cash, that is, Central Bank demand liabilities.

It is probable, therefore, that we have in Ireland a situation in which all financial intermediaries, apart from the Central Bank, could achieve a reasonably satisfactory asset-mix by investing in Irish securities, including those required as immediate liquidity reserves. The merchant and foreign commercial banks can employ their net cash surplus by lending at call or short notice to the Central Bank and the Associated Banks, and the Associated Banks have now an outlet in these Central Bank securities comparable to those which they have historically used in London to balance their portfolio positions.

Existence of an Irish Money Market—The Behaviour of the Institutions

The question as to whether an Irish Money Market exists is not, however, simply an issue of whether the required facilities for money-market transactions are present in this country. The existence of appropriate investment outlets is, obviously, a necessary condition for the existence of a domestic money market, but a market could hardly be said to exist unless those facilities are used in a straightforward commercial way by those domestic financial intermediaries which require this type of investment outlet. The matrix in Appendix A will help in organising the enquiry as to how far money-market facilities in Dublin are being used by the financial institutions and the extent to which those bodies still rely on outside sources for their money-market outlets.

The Disposition of Liquid Reserves Matrix

A verbal description of the practices of the various categories of financial intermediaries which exist in Ireland, as regards investment of their liquid reserves in interest-bearing deposit form, would be protracted and confusing. I have, therefore, summarised the position as it at present exists in matrix form in Appendix A. The institutions comprising the various categories mentioned in the vector headings are listed in Appendix B.

From the viewpoint of the present paper, the most important aspect of the matrix is the number of non-zero entries in the row vector for the

“External Sector” The ratio of non-zero entries to the total number of elements in this vector (excluding the elements referring to the Central Bank and the External Sector) offers a measure of the openness of the Irish financial sector as far as the disposition of liquidity reserves by the financial intermediaries is concerned (The Central Bank is excluded, because the disposition of its liquid reserves in external financial centres is decided upon independently of the existence of domestic facilities for such investment) This ratio seems to be a reasonable criterion for the existence of an Irish money market the greater the extent to which Irish financial institutions treat an external financial centre as an ordinary commercial outlet for their most liquid interest-bearing reserves, the weaker must be any assertion that an Irish money market exists The ratio in question is 0.71, the maximum possible being unity (For an important qualification regarding the interpretation of this and other ratios derived from the matrix, please refer to the concluding paragraph of Appendix A)

Here we have a quantitative expression of what is known to everybody professionally concerned with financial intermediation in Ireland, namely, that a number of Irish financial intermediaries find London an appropriate resting-place for a proportion of their near-money reserves

An indication of the scale on which the London money market is used by Irish financial intermediaries is given in Table 1 It is clear from that table that the facilities which exist for the utilisation of surplus cash in the form of highly-liquid, low risk, interest-bearing investments in Dublin are being used to a considerable extent by the Irish financial institutions It is probable, indeed, that for those intermediaries who do not require a near-cash (as opposed to a near-money) asset, the facilities available in Dublin are adequate all except the Associated Banks and the merchant and commercial banks find the required outlets for their most liquid reserves in Dublin, the balances which they hold in London probably arise out of their relations with affiliates in that centre (The life insurance companies are a case in point the subsidiaries of British companies are understood to act as branches of the parent concerns, remitting surplus money balances directly to the head offices) The practices of the Associated Banks and the merchant and (other) commercial banks are, however, the most important factor in determining whether or not a money market can be said to exist in this country They act as repositories of liquid reserves for most of the other financial institutions and so can be regarded as an important channel through which the near-money reserves of the financial institutions as a group find an ultimate resting-place in the form

TABLE I
£ MILLION

	Money at Call and Short Notice		Balances with (Other) Banks		Total	
	Within the State	Elsewhere	Within the State	Elsewhere	Within the State	Elsewhere
Associated Banks (30-9-69) (See note)	40 0*	17 9	5 1	17 3	45 1*	35 2
Merchant and Foreign Commercial Banks (30-9-69)	21 3	39 7	2 0	16 2	23 3	55 9
Finance Companies (30-9-69)						
Industrial Banks	4 3	3 6	0 5	—	4 7	3 6
H P Companies					0 1†	—
Other Licensed Banks (30-9-69)	4 3	0 8	1 4	0 3	5 7	1 1
Saving Banks						
POSB (31-12-68)	15 7**	—	—	—	15 7	—
TSBs (20-11-68)						
Insurance Companies ‡						
Irish Assurance Companies (31-12-68)	1 0	—	0 8‡	—	1 7	—
Building Societies (end-1968)	0 1	—	0 4	—	0 5	—

* Includes balances with Central Bank

** Central Bank—£14 1 million, Bank of Nova Scotia—£1 6 million

† This figure is shown in H P Finance Companies balance sheet as "Cash, bank balances, etc"

‡ Includes "Cash in Hand, Bank Balance and Bills Receivable" in case of New Ireland Assurance Company Limited Assumed that accounts are held within the State

NOTE The total amount of money held at call or short notice (including deposit balances at the Central Bank) by the Associated Banks at the end of September 1969 was £84 6 million Of this, seventy-nine per cent (the proportion of their deposit liabilities held in the State) is taken to refer to their operations in the Republic Since the amount of money held at call or short notice (including Central Bank deposits) in the State at 30 September was £40 million, it follows that £17 9 million of their money at call and short notice in London was held against liabilities in the State

of low-risk, interest-bearing deposits The balance of the Associated Banks' money at call and short notice, relevant to their business in the State, held in London is accounted for by the British special import deposit scheme, balances under which are classified as money at call and short notice The merchant and non-associated commercial banks are the principal remaining Irish users of London money-market facilities The conclusion must be, therefore, that an Irish money market exists as we have seen, the required investment outlets are present and they are used, even if not to the fullest extent possible, by the financial institutions

FUNCTIONS OF AN IRISH MONEY MARKET

Given that the Dublin money market could be used to a greater extent by the financial institutions, it may be useful to consider the functions which a fully-developed Irish money market might perform. These functions would be

- (1) to increase the foreign exchange earnings of the economy by centralising the external holdings of money at call and short notice of the central sector,
- (2) to facilitate the emergence of an interest-rate structure more appropriate to Irish conditions,
- (3) to facilitate the management of the domestic economy by the monetary authorities, and
- (4) to improve the marketability of Government stocks

When a number of Irish financial institutions operate separately in an external money market, in that they hold money at call or short notice there, the aggregate amount of money held by the economy as a whole in liquid form externally is greater than it need be. This follows from the basic banking principle of holding fractional reserves, the principle that permits commercial banks to invest part of their funds, which are acquired by the assumption of deposit liabilities, in such assets as Government stocks which have a comparatively long period to maturity. Correspondingly, if the Irish financial sector as a whole centralised in a Dublin money market, the money at call or short notice relating to its business in the State which it now holds externally, the fund of external assets so centralised could be invested over a spectrum of assets and not merely in money at call and short notice in London as is at present the case. The sum invested in this fashion in London is in the region of £60 million, excluding money so invested in London by the Central Bank. If this money could be invested in a wider range of financial assets, having an average return one-half per cent higher than the average rate received on money at call and short notice in London, the economy at large would benefit to the extent of £300,000 per year in invisible export earnings. A fully developed domestic money market, so judged by the criterion that recourse to the London money market by Irish financial intermediaries (exclusive of the Central Bank) would be negligible, has thus much potential benefit to confer on the domestic economy. Looked at from the point of view of increased foreign exchange earnings, it would have a capitalised value in the £3 million to £6 million range.

Increased foreign exchange earnings for the economy at large is perhaps the most obvious benefit to be gained from the creation of a developed Irish money market, but it would have other less measurable, functions as well.

The first of these would be a tightening up of the total financial intermediation process in this country. It would produce a pyramiding in the disposal of money at call and short notice, in which process intermediaries would hold deposits of this kind with other Irish institutions. At the apex of the pyramid would stand the Central Bank which would, for practical

purposes, be the sole investor in liquid foreign exchange assets. In this situation, in which Irish financial intermediaries did not lend their surplus money-balances abroad, there would almost certainly be a greater responsiveness of short-term interest rates in this country to domestic monetary fluctuations. For example, an increase in the flow of deposits to the merchant banking group would lead to an increase in their money held at call and short notice with (under existing arrangements) the Central Bank. If the Bank were following a neutral open-market policy it would increase its purchases of securities in order to offset the drain of cash which an increase in deposits with it would otherwise represent. Other things being equal, such purchases would raise security prices and thereby lower interest rates. The degree to which Irish interest rates could be reduced below the level prevailing in Britain, without precipitating an outflow of capital, is limited but a relative downward movement can certainly be envisaged. Historically Irish stock prices have been lower than those in the U.K. and an analysis of yields on Government stock with periods to maturity of three years or less (see Table 2) shows that a premium still exists in the short end of the market. The converse is also true: a shortage of liquidity in the financial sector would cause the supply of call money to diminish and so raise domestic interest rates. Given that a limited range exists within which Irish interest rates could diverge from those in the U.K. without precipitating compensatory flows of capital, there is no reason why the domestic interest rate level should not be fixed so as to correspond to financial conditions within the country. At the present time, as the Money Market Report showed, the multifarious direct links between the financial sector here and the London money market provides little basis for believing that the domestic short-term interest-rate level is appropriate to Irish conditions.

An active domestic money market should facilitate the managing of domestic monetary conditions by the authorities. This is true whether we wish to pursue an interest rate orientated or a money stock orientated monetary policy. It would help to make the implementation of an interest-rate policy possible by increasing activity in the Government bond market and it would facilitate a monetary-type policy by making it easier for the Bank to influence the monetary base.¹¹ Once the initial transfers of external assets involved in the centralisation in the ownership of an Irish intermediary of the money now held at call or short notice abroad had been achieved, further changes in the quantum of assets held in this form within the country by Irish institutions would give rise to compensatory purchases of securities by the institution accepting the call money. Otherwise deposits of call money in an Irish money market would be disequilibrating in that they would reduce the monetary base. The contrary is true of withdrawals. Hence the existence of a developed money market in Dublin implies the activation of other short-term

¹¹ This is equivalent to the concepts of "high-powered money" found in the American literature, cf (2) and (3). The "monetary base" has been incorporated into a money supply model by Brunner and Meltzer (1). A time-series for the monetary base is given in Appendix C.

TABLE 2
GOVERNMENT STOCKS WITH THREE YEARS OR LESS TO MATURITY

	Period to Maturity ^a (Days)	Yield to Redemption		
		£	s	d
<i>Irish</i>				
8¼% Conversion Stock 1970	134	8	14	0
3½% Exchequer Bonds 1965/70	240	9	5	0
3½% Fourth National Loan 1950/70	257	9	7	0
3% Exchequer Bonds 1965/70	318	9	7	7
8½% Conversion Stock 1971	499	9	12	6
6½% Exchequer Stock 1971	682	9	14	0
8½% Conversion Stock 1972	864	9	15	1
5% National Loan 1962/72	1,032	9	15	1
<i>British</i>				
Exchequer 6% 1970	105	8	3	0
Saving Bonds 3% 1960/70	289	8	17	11
Treasury 6½% 1971	438	9	3	10
Conversion 5% 1971	606	9	1	6
Exchequer 6¾% 1971	663	9	7	2
Conversion 6% 1972	821	9	9	3
Exchequer 6¼% 1972	1,972	9	8	11

* As at 14 November 1969

security markets, which in our circumstances would probably be principally the short-dated Government bond market. Given an active market in these securities, it would be feasible for the Central Bank to vary the size of its portfolio of Irish securities and so influence the size of the monetary base.

A fourth function of a developed Irish money market would be the improvement of the intermediation process as effected through the issue of short-dated securities. Involved in the improvement would certainly be short-dated Government stocks and possibly also the markets for commercial and Exchequer Bills. At the present time in this country the flow of savings from surplus economic units is not sufficient to satisfy the demands of ultimate deficit spenders. Evidence of this is the difficulty which the Government experiences in financing the capital programme. Since the Government is responsible through the public capital programme for half of the national investment total, their difficulty in obtaining domestic finance is obviously important. A glance at the method envisaged by the Department of Finance for financing the public capital programme for 1969-70 is illuminating.

TABLE 3
PUBLIC CAPITAL PROGRAMME, 1969-70 SOURCES OF FINANCE

<i>Estimates</i>		£m
Total Expenditure		186 7*
<i>Sources of Finance</i>		
Internal Surpluses of Local Authorities and Semi-State Bodies	34 8	
Other Funds found by Local Authorities and Semi-State Bodies	31 2	
<i>Central Government</i>		
Loan Repayments	7 3	
Investment Resources of Departmental Funds	25 6	
Small Savings and Prize Bonds	6 0	
National Loans	26 0	
Miscellaneous	2 8	
Banks and Foreign Borrowing	53 0	
	—	186 7

* This includes refinancing of previous borrowing (£11 9 million) and miscellaneous items amounting to £8 0 million

SOURCE (Capital Budget 1969), published by the Stationery Office

When it is borne in mind that the bulk of direct investment by the Government is of a long-term nature, the emphasis on (essentially short-term) borrowing from the banks apparent in these figures is disturbing. The question arises as to whether it is possible to modify our financial structure, so that a greater proportion of Government borrowing can be raised by the free sale of securities on the capital market. It is unlikely that changes in the financial structure of the economy are capable of increasing the proportion of national income saved. The further development of the Dublin money market would not, therefore, modify the effect on domestic demand of a given level of Government spending. A developed money market would, nevertheless, widen the market for Government stocks, since it would bring about the accumulation of a pool of short-term money in Dublin. The increments to this pool, if the interest on it were to be paid and a neutral effect on monetary conditions in the economy achieved, must needs be invested in such securities as short-dated stock issued by the Government. Such stock issues, though technically short-term, would be financed by a revolving fund and could therefore reasonably be regarded as a source of long-term finance.

The thesis that the existence of a money market helps to activate the market in short-dated Government stocks is corroborated (though not, of course, proved) by the turnover figures for Government stocks in London. In the following table these can be contrasted with the corresponding figures for this country

TABLE 4
 TURNOVER OF GOVERNMENT STOCKS

Term to maturity	IRISH		
	Total bonds outstanding as at 30 June 1968	Value of transactions for year 1968	Average value of transactions per £10 million of bonds
0-5 years	107,359,000	36,507,000	3,400,000
5 years and upwards	293,091,000	156,652,000	5,345,000
Term to maturity	BRITISH		
	Total bonds outstanding as at 31 March 1968	Value of transactions for year 1968	Average value of transactions per £10 million of bonds
0-5 years	6,563,000,000	14,502,000,000	22,097,000
5 years and upwards [*]	13,527,000,000	6,532,000,000	4,829,000

- NOTES 1 The value of transfers from one member of the public to another, executed through a stockbroker, is duplicated in the turnover figures
- 2 British turnover figures refer to transactions on the London Stock Exchange only
- 3 Corresponding figures for the year 1967 will be found in Table 7, page 51, of the Report of the Committee on the Functions, Operation and Development of a Money Market in Ireland, published by the Central Bank of Ireland

* Includes figures for undated stocks

SOURCES Irish Stocks Turnover Department of Finance
 Amount Outstanding Dublin Stock Exchange List
 British Stocks Turnover Bank of England Quarterly Bulletin
 Amount Outstanding Financial Stats (H M S O)

The final column of the table shows the turnover figures on a comparable basis. It is evident that the real difference between the two Government bond markets lies at the short end of the maturity range. Here, the British market is much more active, can accommodate large purchases and sales without significant disturbance to prices and so is more attractive to institutions requiring highly liquid assets. The London Discount Market is the major holder of short-dated Government stocks, in which it deals actively. The result is that other financial institutions go into the market for such stocks, as well, the result being that short-dated Government stocks are an attractive investment for all concerned. That position does not yet obtain in this country but it could be brought about by the creation of a larger pool of money at call and short notice in Dublin.

CONCLUSION

I have argued in this paper that an Irish money market exists, this conclusion was reached on the basis that the requisite facilities are present and that they are used by the financial institutions. It has, also, been concluded that this money market is capable of considerable further development.

By way of conclusion it is worth pointing out that the further development of the Irish money market could create problems from the point of view of monetary control. The first is the obvious one that measures would need to be taken to prevent the flows of money associated with the transfers of money at call and short notice from London to Dublin from going directly into the domestic spending stream. Such an augmentation of the money supply could only add to inflationary pressure already present in the economy. Finally, it should be remembered that the existence of a highly-developed money market would tend to add to the channels through which the Central Bank itself could add to the monetary base. As its day-to-day purchases and sales of Irish securities grew, the Bank could find its desire to achieve continuity in its support for the bond and bill markets conflicting with its monetary-policy objective.

APPENDIX A

DISPOSITION OF LIQUID RESERVES MATRIX

Elements

The following should be borne in mind when reading the matrix

- (1) "Liquid Reserves" refer to interest-bearing deposit balances held as first-line earning reserves by financial intermediaries
- (2) A zero (0) entry indicates that the lender mentioned at the head of the column has not acquired a deposit obligation from the borrower mentioned at the beginning of the row, a unit (1) entry indicates that such a deposit has been made
- (3) The entries are based in part on personal knowledge of the relevant part of the financial sector. The situation described in the matrix is volatile but it is believed to be an accurate description of the practices of these institutions at the present time
- (4) The Central Bank is regarded as the ultimate repository for domestic near-cash reserves and is accordingly placed at the outside of the matrix. The external sector is not so regarded because investment in assets denominated in external currency carries with it an exchange risk

Interpretation

Apart from that mentioned in the text, the matrix yields some further interesting ratios

- (1) If the categories of financial intermediary can be ranked in a hierarchical fashion, the ratio of all non-zero entries to the number of cells in the diagonal plus half the cells in the matrix excluding the diagonal is a measure of integration of the domestic financial sector (when the external sector vectors are excluded). Where X is the number of non-zero entries in question and N is the number of row vectors in the (square) matrix, the "Integration Ratio" is $\frac{2X}{N^2 - N}$. For Ireland, the ratio at present is 0.42. The maximum is unity, assuming that financial institutions in one category will not make interest-bearing deposits

with those in another category which they judge to be below these in the hierarchical order. It is assumed that inter-institutional deposits within categories are to be expected.

- (2) The degree to which institutions in a particular category net out their surplus/deficit liquid reserves positions can be measured by the ratio of the number of non-zero elements in the principal diagonal to the total number of elements in the diagonal, excluding the External Sector and the Central Bank. This ratio is 0.14. The maximum is, of course, unity. The closer the ratio approaches unity, the greater is the extent to which the financial intermediaries, considered as groups, are economising on liquid reserves and so using their resources in lending to ultimate borrowers.
- (3) A fourth ratio can be derived from a sub-matrix formed by excluding the vectors for the Associated Banks, the Central Bank and the External Sector from the full matrix. The ratio of non-zero entries to total number of elements $\frac{X_1}{N_1^2}$ is a measure of the degree to which the non-money-creating intermediaries economise on money balances by netting out their surplus/deficit positions among themselves. The ratio here is 0.14, the maximum again, being unity.

Further Development

The ratios derived from the matrix would have greater quantitative precision if data for the disposal of liquid reserves by the financial institutions were available in greater detail. The elements of the matrix could then comprise the *proportion* of the liquid reserves of the institutional category mentioned in the column-vector heading disposed of by making deposits with the institutions mentioned in the row headings. For example, if the merchant and foreign commercial banks held 50 per cent of their money at call and short notice abroad, the second element in the row vector for the external sector would be 0.5. Each column vector would then sum to unity and the mathematics for the derivation of the ratios would be altered.

APPENDIX B IRISH FINANCIAL INTERMEDIARIES

1 *Associated Banks*

Bank of Ireland
The Hibernian Bank Ltd
The National Bank of Ireland Ltd
Northern Bank Ltd
The Munster & Leinster Bank Ltd
Provincial Bank of Ireland Ltd
The Royal Bank of Ireland Ltd
Ulster Bank Ltd

2 *Merchant and Foreign Commercial Banks*

Allied Irish Investment Bank Ltd
Ansbacher & Co Ltd
The Bank of Nova Scotia
Bank of America National Trust & Savings Association
Chase and Bank of Ireland (International) Ltd
The First National City Bank
Guinness & Mahon Ltd
Hill Samuel & Co (Ireland) Ltd
Investment Bank of Ireland Ltd
Northern Bank Finance Corporation

3 *State owned financial Intermediaries*
 The Agricultural Credit Corporation Ltd
 The Industrial Credit Company Ltd

*These two institutions are included in the vectors for "Other Licensed Banks" in the matrix in Appendix A "

4 *Finance Companies*

Industrial Bankers

Allied Finance Ltd	Blackwater Finance Co Ltd
Bowmaker (Ireland) Ltd	Block Finance Ltd
B W Credit Corporation Ltd	Bowmaker (Irish Finance) Ltd
Credit Finance Ltd	Carvan Credit Ltd
Foster Finance Ltd	Commercial Credit Corp Ltd
General Finance Trust Ltd	Commercial Trust Co Ltd
Hire-Purchase Company of Ireland Ltd	Cycle Finance Ltd
Hodge Industrial Securities (Ireland) Ltd	Commodity Trust Ltd
Irish Buyway Ltd	General Motors Acceptance Corp (Ireland) Ltd
Investments Ltd	Group Investments Ltd
Limerick Credit Co Ltd	Gresham Trust Corp Ltd
Lombank Ltd	Irish Acceptances Ltd
Lombank Finance Ltd	Irish Finance Corp Ltd
Mercantile Credit Co of Ireland Ltd	Livestock Credit Corp Ltd
Merchant Banking Ltd	Lloyds & Scottish (Ireland) Ltd
National Carways Ltd	Mercantile Credit (Hire Purchase) Ltd
National Credit Co Ltd	National Credit Co Ltd
Ulster Merchant Finance (Dublin) Ltd	National Investment Trust Ltd
United Dominions Trust (Ireland) Ltd	Phoenix Finance Trust Ltd
	Private Motorists' Provident Society Ltd
	Retail Credit Corp Ltd
	Sales Finance Ltd
	Standard Trust Ltd
	Sterling Mercantile Finance Co Ltd
	Terms Ltd
	Wallbrooke Ltd
	Western Finance Co Ltd
<i>H P Finance Companies</i>	
Astley Industrial Trust Ltd	
Southern Industrial Trust Ltd	
Acorn Holdings Ltd	
C H Arthur Ltd	

5 *Other Licensed Banks*

Allied Irish Banks
The American Express International Banking Corporation
Anglo-Irish Bank Ltd
Capital City Bank Ltd
Charterhouse (Ireland) Ltd
Charterhouse Finance (Ireland) Ltd
City of Dublin Bank Ltd
Commercial Banking Co Ltd
Credit Services Ltd
The Dolphin's Barn Parish Thrift and Loan Co Ltd
Equity Securities Ltd
Facts
Federated Investment Facilities Ltd
The Irish International Bank Ltd
Julian S Hodge (Ireland) Ltd
Lombard Bank Ireland Ltd
Merchant & Industrial Bank (Ireland) Ltd
Noble Lowndes Bank Ltd

Tea Importers (1958) Ltd
 Thomas Cook & Son Ltd
 The Thrift Co Ltd
 Michell Jermyn & Co Ltd
 Royal Trust Co (Ireland) Ltd
 Waterford Penny Bank Ltd

6 *Savings Banks*

Post Office Savings Bank
 Dublin Trustee Savings Bank
 Cork Trustee Savings Bank
 Waterford Trustee Savings Bank
 Limerick Trustee Saving Bank
 Monaghan Trustee Savings Bank

7 *Insurance Companies* and Pensions Funds*

Irish Companies

Irish Life Assurance Co Ltd
 Comhlucht na hEireann um Arachas Teoranta (New Ireland Assurance Co Ltd)

Non-Irish Companies

Caledonian Insurance Co
 The Canada Life Assurance Co
 Friends' Provident & Century Life
 Law Union & Rock Insurance Co Ltd
 The Life Association of Scotland Ltd
 The National Mutual Life Association of Australasia Ltd
 Norwich Union Life Insurance Society
 Royal Liver Friendly Society
 Scottish Legal Life Assurance Society
 The Scottish Provident Institution
 Stanford Mutual Insurance Co Ltd
 The Standard Life Assurance Co
 Sun Life Assurance Co of Canada

* Only those insurance companies having a life business are included

Pensions Funds Registered under the Perpetual Funds (Registration) Act 1933

Agricultural Credit Corporation Pensions Fund
 Alexander Pensions Fund
 Bolands Pensions Fund
 B+I Superannuation Fund
 Fullers Ireland Pensions Fund
 Irish Airlines (Catering Employees) Superannuation Scheme
 Irish Airlines (General Employees) Superannuation Scheme
 Irish Airlines (Manipulative Employees) Superannuation Scheme
 Irish Airlines Pilots Superannuation Scheme
 Irish Life Assurance Co Ltd Staff Pensions Scheme
 Kapp & Peterson Pensions Fund
 New Ireland—Irish National Fund
 The Racing Board Superannuation Fund
 RTE Superannuation Scheme
 Tedcastle Superannuation Scheme

8 *Building Societies*

The Educational Building Society
 Irish Permanent Building Society
 Irish Industrial Benefit Building Society
 First National Building Society
 Irish Civil Service (Permanent) Building Society
 Ireland Benefit Building Society

The Metropolitan Building Society
 The Guinness Permanent Building Society
 The Provident Building Society
 The O'Connell Benefit Building Society
 Cork Mutual Benefit Building Society
 Dublin Model Building Society
 Midland & Western Building Society
 Ballygall Building Society
 Grafton Savings & Building Society
 Postal Services Permanent Building Society

APPENDIX C THE MONETARY BASE

The monetary base is the (net) sum of the monetary liabilities of the Central Bank and the Minister for Finance, together with the net external asset holdings of the Associated Banks. It is computed by adding together the demand liabilities of the Central Bank to the Associated Banks, the total of currency and coin in circulation and the net external assets of the banks. This total is the magnitude directly affected by Central Bank lending and open market purchases or sales of securities. The effect of changes in the monetary base on the money supply is determined by the incremental demand for currency by the public and the fractional reserve behaviour of the banks. These two behaviour systems intervene between the actions of the Central Bank in adding to or diminishing the monetary base and the related changes in the money stock.

RESERVE BASE¹ QUARTERLY AND ANNUAL FIGURES

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Q1	183 0	186 2	204 0	214 7	214 9	215 5	228 9	237 6	274 1	266 2
Q2	183 1	192 4	205 1	206 2	210 9	202 8	n a	249 6	271 3	253 3
Q3	180 5	193 2	205 1	207 3	216 4	212 8	n a	263 5	286 1	223 8
Q4	189 8	203 6	216 7	212 2	222 9	224 8	240 7	276 1	284 1	
Year	184 1	193 9	207 7	210 1	216 3	214 0	235 9*	256 7	278 9	

* Averages of seven months' data

¹ Associated Banks' net external assets *plus* balances at the Central Bank, *plus* total Irish currency circulation (not adjusted for Associated Banks' holdings)

REFERENCES

- 1 BRUNNER, K and MELTZER, A "Liquidity Traps for Money, Bank Credit and Interest Rates", *J P E*, Vol 76, Jan -Feb 1968
- 2 CAGAN, P *Determinants and Effects of Changes in the Stock of Money 1875-1960* National Bureau of Economic Research, 1965
- 3 GURLEY, J G and SHAW, E S *Money in a Theory of Finance* Brookings Institution 1960
- 5 GURLEY, J G and SHAW, E S "Financial Aspects of Economic Development" *A E R*, September 1955
- 5 HICKS, J R "A Suggestion for Simplifying the Theory of Money" *Economica* (New Series), 2 (1935)
- 6 PATINKIN, D *Financial Intermediaries and the Logical Structure of Monetary Theory* *A E R*, March 1961
- 7 "Committee on the Functions, Operation and Development of a Money Market in Ireland", *Report, Central Bank of Ireland, 1968*

DISPOSITION OF LIQUID RESERVES MATRIX

Lenders		Merchant and Foreign Commercial Banks	Finance Companies	Other Licensed Banks	Savings Banks	Insurance Companies and Pensions Funds	Building Societies	External Sector	Central Bank
Borrowers	Associated Banks								
Associated Banks	0	1	1	1	1	1	1	0	0
Merchant and Foreign Commercial Banks	0	1	1	1	1	1	0	1	0
Finance Companies	0	0	0	0	0	0	0	1	0
Other Licensed Banks	0	0	0	0	0	0	0	0	0
Savings Banks	0	0	0	0	0	0	0	0	0
Insurance Companies and Pensions Funds	0	0	0	0	0	0	0	0	0
Building Societies	0	0	0	0	0	0	0	0	0
External Sector	1	1	1	1	0	1	0	0	1
Central Bank	1	1	0	0	1	0	0	0	0

DISCUSSION

Mr M D McGuane We are all indebted to Mr Hoare for having prepared this paper on the "Nature and Functions of an Irish Money Market" It should be read with the Report of the Committee on the Money Market which was published earlier this year As you all know, Mr Hoare was Joint Secretary of the Committee, and played an important part in the preparation of its Report Mr Hoare comments on the development of Financial Institutions, and examines the present practices of Irish institutions, and the facilities available to them, especially in view of the new activities of the Central Bank in accepting short term deposits, the revised basis of Exchequer Bill issues and dealings in the Government bond market As a measure of the practices of the various institutions in investing their liquid resources, he has prepared an interesting matrix and derives various ratios therefrom The ones I found most interesting were those illustrating the extent to which Irish institutions make use of an external financial centre, and the degree to which institutions deal in some way with each other The first of these ratios might perhaps have been more simply expressed by saying that five out of a possible seven sectors deal directly with the external sector, i.e. $\frac{5}{7}$ or 71 There is thus a relatively high degree of use of the services of the London market, and this is quantified in Table 1 of the paper

I feel, however, that this Table may give a somewhat misleading impression of the amounts that could be deployed from the London money market to a Dublin money market A substantial proportion of the Associated Banks balances in London are required in connection with the British Import Deposit Scheme A striking feature of the recent operations of the merchant and foreign commercial banks is that they now have a net external liability position, and in consequence I doubt how valid is the assumption that their liquid assets should be invested within the State and elsewhere in the ratio of their deposit liabilities within the State and elsewhere

The really interesting part of Mr Hoare's paper relates to the functions of an Irish money market He makes the very valid point that if the Irish financial sector as a whole centralised in a Dublin money market, the money at call or short notice relating to its business in the State which it now holds externally, the fund of external assets so centralised could be invested over a spectrum of assets at a higher rate than is available merely on money at call I am not so convinced, however, of his arguments that the establishment of a Dublin money market would result in more autonomous short-term interest rates in this country To a very minor degree it could, but it would in practice not be possible in the absence of restrictions on capital movements for the Dublin rate to diverge other than to a very limited extent from the London rate The existence of a Dublin money market would undoubtedly augment the Central Bank's armoury for influencing the economy The final function of an Irish money market, as Mr Hoare sees it, would be to improve the financing of the State Capital programme Instead of a substantial part of the

finance being provided by the banks, it would be provided by the sale of short-term securities on the Capital market out of a pool of short-term money. In practice, however, it seems to me that this pool of short-term money would be provided by the banks so that in the last analysis they would still be providing the finance for a large share of the State Capital programme. What would change would be the form in which this capital was provided—by negotiable short-term bonds rather than by un-negotiable Exchequer Bills. The degree to which these bonds would be negotiable would, however, depend on the readiness of the Central Bank to support the market.

This brings us to the nub of the problem. It is assumed that support for the bond market would be exercised within the context of a demand-supply relationship for bonds, and that interest rates would reflect market forces. Considerations of monetary policy might, however, require that the authorities should not support bond prices in certain circumstances, and that interest rates should rise to such levels as would dissuade existing holders from selling and adding to their cash resources which could become the basis for credit creation.

There are major issues of national policy involved in these matters. A substantial increase in commercial bank holdings of Irish Government securities, and the deployment of more of their liquid resources in Ireland is obviously desirable. To be practicable, the appropriate institutional arrangements must be made. The difficulty is then to ensure that the Government does not disburse the entire proceeds of the increase in holdings of Irish Government securities by the financial institutions, which would have a pronounced immediate effect on aggregate demand. These weighty matters are outside my scope and competence.

From a practical investment manager's viewpoint, the implementation of the recommendations of the Money Market Committee's Report for a better bond market must be welcomed unreservedly. You cannot have an active long-end of the market unless there is an active short-end, and the Report's recommendations would result in an active short-end in that the Government broker would be in a position to make a two-way market in a wide spread of securities. There is a limit to the amount of Government bonds that any financial institution can afford to hold in its portfolio. A free market, and an opportunity to increase yield by switching profits would, however, tend to increase this limit.

To return from the long-end of the bond market to the money market, this is primarily of interest to the banks and merchant banks. It is not of importance as an outlet for funds to non-bank financial institutions. Such institutions are interested in the market as a means to an improvement of the long Government bond market in which they are very interested. The Irish Assurance Companies would I am sure be prepared to participate in the proposed dealing houses recommended by the Money Market Committee if it were the wish of the Central Bank that such institutions be established. I doubt very much, however, if the deposit resources available from the banks would permit the successful establishment of more than one such dealer. It might appear more

straightforward for the Central Bank to take short-term deposits from the banks, and issue appropriate securities in exchange. The banks might, however, prefer to deal at arm's length through an intermediary.

This is not my province, and I would like once more to express all our thanks to Mr Hoare for his stimulating paper.

Mr Noel J Coghlan Mr Hoare has outlined for us this evening the genesis of an Irish money market and analysed its implications for monetary, and more generally, demand management policies. He has based his analysis on the theory of asset choice and portfolio adjustment. One can scarcely doubt that this is a valid and purposeful approach. Indeed one is nearly tempted to take it for granted and to concentrate one's attention almost exclusively on the latter part of the paper. Such a reaction would be, I feel, in a sense unfortunate, there is much to be gained, in my view, from an examination of the earlier part.

Mr Hoare has set out the origin and traced the expansion of financial intermediation in terms of stages of economic development. An alternative, though effectively equivalent, presentation is to proceed in terms of theoretical models of varying complexity or levels of abstraction. The natural starting point in such a presentation is perhaps the simple classical exchange system of which the Walrasian is a much quoted example. By the very construction of such a model—the assumption of zero stock carryover—demand for money is a disequilibrium phenomenon. Money stocks if they are conceived of as frictional phenomena, voluntary demand for money cannot exist. To introduce money one must relax the assumptions of the model to permit the accumulation of assets, that is one must begin to think in terms of asset stocks as well as of income and expenditure flows.

If we are to have a theory of asset choice—call it a theory of capital if you will—in any but a trivial sense then clearly we must have more than one asset. If we still retain the usual assumptions of classical economics—certainty, nil transactions or search costs and perfect competition, an economic unit will, in such a model, always opt for the asset which offers the highest yield. If in such a model we assume, as is usual, that money is non-interest bearing we most likely find ourselves back in square one, for provided that the non money asset or assets has or have positive yields then the demand for money is once again zero.

Clearly the assumptions of the classical model must again be relaxed, this time by introducing uncertainty. We now have money which since it always is interest free is of certain yield and other assets the yield on which is no longer known with certainty. In this situation the demand for any asset including money is essentially a function of expected yield and the variance of that yield. If we assume that risk prone and risk averting economic units are fairly evenly distributed then the demand for money as an asset becomes a practical possibility in our analysis. The amount of that demand will, in the circumstances just outlined, be determined by the yields, risk and correlation of risk of the assets available to the economic unit.

There is, however, a second aspect to uncertainty. Uncertainty has been considered so far in relation to the yield of an asset. It may also, quite clearly relate to the economic unit's knowledge of future income and expenditure flows. In short it may affect the planned date of realisation of his assets. If we admit of transaction costs in switching between assets then a reduction in the uncertainty of expectation such that the realisation date moves forward in time will increase the profitability of a non money biased portfolio, conversely an increase in uncertainty and reduction in the interval preceding the realisation date will create a money bias in portfolio composition. In so far as the costs of disinvestment vary between assets one can group assets as liquid or illiquid, that is one can speak meaningfully of money and money substitutes on one hand and on the other of non money substitutes—more concisely, perhaps, one can identify in principle the famous Hicksian fault in the asset spectrum.

The argument has so far concentrated on the demand for assets but of course there is, as Mr Hoare has pointed out, the other side of the coin—the supply of assets and the development of financial intermediation. The introduction of uncertainty at once brings into the model the concept of search costs. The classical assumption of perfect knowledge has gone by the board—knowledge is now something which one must buy. The consequent reduction of risk for a given yield which follows the accumulation of information on specific assets segments the market for financial assets and permits the development of specialised intermediaries.

I hope I have not done too great a violence to the theory of asset choice during the past five minutes. Its relevance to the formulation of policy in a period when our financial structure is undergoing significant changes, of which the evolution of a money market is an example, is I feel basic. In such a situation of structural change, the closely knit fabric of the theory provides a framework which enables one to formulate relevant questions and to identify interdependent elements in seemingly diverse developments.

Dr Geary I expect that an expert like Mr Hoare will regard my question as silly. Anyhow it is this. Are we to envisage a house with "Money Market" written on the fanlight and a man inside who will be a kind of wholesaler or middleman dealing with vast variety of first-class short-term paper?

Remarks of President (Dr T K Whitaker) It is with pride as well as with pleasure that I preside this evening. The author of the paper is one of the ablest members of the staff of the Central Bank and has played a significant role in both the preliminary studies and the practical steps connected with the development of a money market in Dublin.

The theoretical approach in the paper may divert attention from practical achievement. Already, much progress has been made in establishing money market facilities. The Central Bank is now taking short-term deposits from other financial institutions and by its dealing

initiatives is activating the market in short-dated Irish Government securities. The approach is empirical—let us first make sure that the goods are the kind for which a market can be developed.

An important consideration, to which the Central Bank must constantly pay attention, is the possible conflict between management of Government debt and the pursuit of an appropriate credit policy. Other Central Banks have found themselves issuing more money to support the market in Government stocks than was consistent with their declared credit policies. In the preface to the money Market Report I drew particular attention to this danger and said that the Central Bank must be able to ensure that a money market is amenable to monetary policy and that it operates in a way which does not frustrate achievement of the prevailing economic aims.

I might add that the possibility of a money market giving rise to lower interest rates here than in Britain seems remote. It may well be necessary to have slightly higher rates here to build up a local market, if for no other reason.

No decision can reasonably be made about the establishment of dealing houses until more experience of the nature and extent of the market is gained and a better assessment of the potentialities and problems can be made. Meanwhile, interested parties—and I am glad that these include the life assurance companies—will be kept informed of progress.

Mr Thomas F Hoare I should like to thank Mr McGuane for his kind remarks. A number of substantial points have been raised by Mr Coughlan, Dr Geary and Mr McGuane, of which I will refer to only one.

This is the question of whether and to what extent Irish interest rates can diverge from those abroad and particularly those in the UK. As far as I know, nobody has come forward with a satisfactory answer to this question, satisfactory in the sense of having empirical support for their point of view. The reason for this is, probably, the difficulty of defining comparable Irish and UK securities. Is an Irish Government stock with five years to maturity, issued at 98½ and with a coupon of eight per cent, an identical economic good to a British Government stock with the same technical characteristics? I doubt if it is. The currency difference is the most obvious one but besides this we have undoubtedly a complex set of emotional (patriotic) and national (risk of default) considerations which will bias certain investors towards one Government's securities rather than another. Capital does, of course, flow in large amounts from one country to another but, probably even for institutional investors, nominal yields are only one of the considerations determining these flows. Switzerland, a country in which interest rates are usually lower than those in other advanced countries and which attracts inflows of capital, is a case point. We may be unduly influenced in Ireland, in our consideration of this matter, by the probability that some institutional investors regard London as a perfect substitute for

Dublin as a centre for the investment of money I doubt if British investors, institutional or otherwise, have a similar view of Dublin. It may be, therefore, that U.K. interest rates set a floor for certain Irish rates but I doubt if we would be inundated by an inflow of capital if Irish rates were to rise above those in the U.K. Indeed, Irish rates, in particular the yields on Government stock, have for long periods in the past been above those in Britain and there is no evidence that during those periods the Government was pursuing a policy of keeping down Irish bond prices. It is very probably the case that investors in the two countries regarded Irish and British stocks, with technically similar characteristics, as quite different things. If Government stocks are unique, how much more probable it is that securities issued by subsidiary bodies, such as the semi-state organisations, would be regarded as *sui generis* by investors. If one of our more successful semi-state bodies were to issue a stock with, for example, an option of conversion into equity at a later date, who can say what the yield would be? They might well be able to raise capital more cheaply and more readily in Ireland by this method than by floating stock issues abroad. It is precisely in this kind of marketing area, the identification of compatible sets of borrowers and lenders and bringing them together by devising suitable securities, that specialised dealers could be helpful. The resultant rate structure in Ireland would certainly be different. Whether it would be above or below that of the U.K. would be difficult to measure and, I suggest impossible to predict.

Added after the meeting

In the light of the paper and of the concluding remarks of the President it seems clear that the Central Bank (and perhaps indeed the commercial banks) already performs many of the functions of a money market. While the London Money Market interest rates must to a great extent continue largely to influence the level of rates here even with a local money market in existence as a specific institution, it seems likely that such an institution must have regard to the needs of the economy. The wholesaler in near-money would have the inestimable advantage of knowing the credit-worthiness of his customers. Furthermore, in Ireland at present, there must be very appreciable differences in discount rates at any given time for essentially the same quality of paper, depending on where one trades it. I have noticed some small but strange aberrations in interest and discount rates even in London. A local wholesaler would bring order and regularity into this state of affairs, having regard to Irish interests (including his own).

The President (as I understood him) made the point which seems to me a good one that the Central Bank, performing open market operations on the one hand to control the supply of money and purely money market operations on the other, may find the hands in conflict of aims. This is an argument for setting up a separate institution, for the essence of balance in a free society lies in conflict, but not within a single organ.