The Canadian Money Market Experiment[1]

In the absence of a short-term money market, the central bank in the country concerned is by no means entirely powerless to control the activities of the commercial banks and thereby the supply of money that is made available to the economy. In these circumstances, however, if the central bank is to exert more than a moral authority, it must usually be prepared to intervene directly to control commercial bank liquidity and interest rates (2). Yet in its formative years, when these conditions are most likely to apply, the central bank will be feeling its way and somewhat loath to adopt measures that smack too obviously of dictation, since in the successful implementation of their policies the authorities must always depend to quite a considerable extent on the co-operation of the rest of the financial community.

By way of contrast, where a market in short-term monetary assets already exists, the central bank can buy or sell the relevant securities in the open market and thereby exert an influence both on yields and on money rates consistent with the reactions of market institutions. Such indirect action, though it may be supplemented by other measures, is likely to facilitate a smoothness in adjustment that is improbable when the authorities are obliged to depend solely on the direct variation of bank liquidity and/or of interest rates. In addition, the commercial banks can resort to the short-term

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(2) Where a bond market exists, as it did in Canada for many years prior to the development of a " money market ", it can be of considerable help to the central bank in carrying out its operations, but even if it has sufficient breadth to permit transactions of the required magnitude the effects on short-term interest rates are likely to be much less direct.

market for the purpose of employing their temporarily surplus funds or, whenever necessary, of restoring depleted cash reserves to their required level. In order to secure these advantages where such a market has failed to emerge of its own accord, the authorities themselves have on occasion stepped in and actively sponsored its establishment. This is what happened in Canada.

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The first step might be said to have been taken as far back as March 1934, when arrangements were made to sell Treasury bills by tender. The number of issues was increased progressively and the amount of Treasury bills outstanding expanded steadily. By 1937, tenders were being called on a fortnightly basis and, in January 1953, a weekly tender was introduced. In the early years and for a long time thereafter, it was the "chartered banks" (as the commercial banks are called in Canada, because they must be "chartered" or licensed by the Federal Parliament) that created the demand and "made" such market as there was. Occasionally, the banks traded in bills, but as a rule only with the Bank of Canada itself. Dealings did not usually take place between one chartered bank and another. There were several reasons for this: (i) the Bank of Canada, given the chosen level of rates, always operated with a narrow spread between its buying and selling prices for bills, thereby reducing the risk of loss and ensuring their liquidity; (ii) direct sale to the Bank of Canada enabled a chartered bank to adjust its cash position without the delay associated with going through the clearing; and (iii) sales made to the central bank would be concealed from the prying eyes of competitors. However, the Bank of Canada did not sell as freely as it bought — often it "would not sell bills between issues at all and seldom immediately after an issue so as to discourage artificially low tenders" (3).

Even at this stage, dealers may have done a little business in bills, but they never carried "balances" (i.e. inventories) in bills. From time to time, they would tender on behalf of a customer (e.g. a non-financial corporation) for a small commission, but this was regarded as a service rather than as part of their normal business.

(3) E. P. Neufeld, *Bank of Canada Operations 1935-54*, (Toronto, 1955), p. 37.

Alternatively, a dealer might buy bills from a chartered bank for his customer. However, it was not until the early years of World War II that dealers began to look at Treasury bills rather more seriously, though still nobody thought of carrying a "balance". Then, during the period 1944-46, certain dealers began to consider whether, given the costs involved in borrowing for the purpose, it would be worth their while to carry a small inventory. Nevertheless, it continued to be the chartered banks that carried the bulk of the bills available. At the same time, they had been given some incentive to look elsewhere than to the Bank of Canada for buyers of their bills, in consequence of an increase in the Bank's spread between its buying and selling prices on Treasury bills so as to create a difference in yield of from 0.15 per cent to 0.25 per cent between bills held to maturity and those sold before maturity. This may have helped to broaden the market a little, but the chartered banks still looked mainly to the central bank when they needed to convert bills into cash.

The next major development came in January 1953, when the monetary authorities in Canada decided to accord "limits" to certain dealers for the purpose of securing accommodation on the basis of a sale of Treasury bills under an agreement to repurchase. These facilities were made available at a cheaper rate than that charged by the chartered banks, in order to encourage the dealers both to operate in bills and to hold them in inventory. By this means, it was hoped to increase non-bank holdings of Treasury bills.

This move was something of an experiment and the authorities indicated that any of the dealers could try their hand at it. Originally, about 20 dealers came into the scheme, but a number of them very soon discovered that it was not a type of business they were interested in and they therefore dropped out. This left a group of 13 dealers to which the new arrangements applied, subsequently reduced by withdrawal to 12. In September 1957, the number of participating firms was again restored to 13 (4). However, all those that withdrew did so voluntarily. In this sense,

(4) There was nothing predetermined about the number that might participate in the market from time to time. It is open to any firm that is prepared to bid each week at the tender and actively to engage in money market business to apply for repurchase privileges at the Bank of Canada.

the dealers that took part in the experiment chose themselves. Nevertheless, the Bank of Canada was not completely passive. They discussed the relevant techniques and any difficulties with firms that were interested and those that were prepared to undertake these new responsibilities were then granted lines of credit at the Bank for the purpose. In this way, they became " approved dealers ". The houses concerned were drawn from firms that already acted as jobbers in the market for short-term government securities. Their lines of credit were based on their volume of business, the range of their contacts in the money market, and their understanding of the relevant mechanism, all of which were taken as indications of their ultimate capacity to undertake expanded operations in Treasury bills. To distinguish them from other dealers in securities, they came to be referred to as " jobbers ", though this term is not invariably applied.

On the basis of these arrangements, the market began slowly to develop, as the dealers felt their way into it. Although there were limits on the types of securities that were traded in, they went beyond Treasury bills and included other short-term government securities (i.e. those with maturity dates of up to 3 years). By April 1954, the Bank of Canada felt that the dealers were ready for the next step and the chartered banks were now invited to make available to them facilities for borrowing on a day-to-day basis. If the dealers were to carry adequate inventories of Treasury bills and of other short-term government securities, it was imperative that they should be able to borrow in appropriate amounts at rates of interest and a required margin of security that would leave them with enough profit to provide an incentive. From the point of view of the banks, it was important that loans made at rates that would necessarily tend to be lower than the yield on Treasury bills should be highly liquid. This was the reason why the accommodation in question was specifically defined as " day-to-day " loans to distinguish them from the ordinary " call loans " made by the banks to brokers and dealers, which loans being subject to long-standing banker-customer relationships were not in fact always strictly callable (5). However, if a day-to-day loan was called before noon on any day, it had to be repaid on that day. Conversely, if a dealer wished to liquidate an outstanding loan (either because he no longer needed the money as a result of a sale of securities, or because he could borrow it more cheaply elsewhere), he also had to give notice of his intention to do so before noon on the day in question (6). The first of these loans were made in June 1954.

From the point of view of the chartered banks, the introduction of the day-to-day loan was expected to have several advantages. Thus, it would provide them with a highly liquid earning asset and facilitate the fullest possible employment of their funds. Moreover, instead of the banks' having to sell Treasury bills whenever it became necessary to supplement their cash resources, the immediate shock could now be absorbed by " calling " their day-to-day loans. At the same time, the increased activity of the dealers and of their customers would tend to narrow the spread between buying and selling rates. In effect, this would then increase the liquidity of the Treasury bills still held by the banks since it would reduce the possible loss on actual sales prior to maturity.

The chartered banks were further encouraged to diminish the extent of their dependence on selling Treasury bills to the Bank of Canada as a means of adding to their cash when in June 1954

(5) Nor was the rate varied at all frequently. The usual custom was for the chartered banks to agree a minimum rate on call loans, which was reconsidered from time to time but not always varied even then.

(6) Although the rule is that no " calls " will be made by a bank after 12 noon, both the banks and the dealers usually like to know where they stand by 11.00 a.m. Nevertheless, a bank may well decide to *lend* in the afternoon, if money comes in late and there is a demand for it. Actual payments or deliveries of collateral need not take place until 3.30 p.m. The main factors that determine a bank's money position are two-fold: (i) There is the movement of funds through the clearings, the details of which begin to come in from the East early in the morning, with figures from other time zones following in succession (when it is 9.30 a.m. in Montreal and Toronto, it is 10.30 a.m. in Halifax, but only 6.30 a.m. in Vancouver, the clearing results from which come in by about 1.00 p.m. (or a little later) Montreal and Toronto time. Latterly, the Western clearings have become increasingly important as a result of the economic growth of British Columbia and, from time to time, the consequent delay in establishing the money position of the banks has caused some embarrassment in the market). (ii) There is the Bank of Canada's adjustment of Government balances held with the chartered banks, funds either being called for deposit with the Bank of Canada or added to the Government balance with a chartered bank as a means of " smoothing out " the flow of cash. However, this will now influence the banks' cash figures on the day on which the adjustment is made only if the transaction is effected before the morning clearing, since subsequent to May 27, 1957 such deposits or withdrawals were put on a clearing house funds settlement basis. Cheques for Government account are also now cleared at various Bank of Canada agency points and do not all flow into Ottawa. By this means, it was hoped to speed up the clearing of Government funds.

the Bank began to pay for Treasury bills sold to it by means of "clearing vouchers" which the chartered banks received on the day following the sale, but which only entitled them to funds at the Bank of Canada after being passed through the clearing, i.e. on the next succeeding day. This meant that the banks could increase their cash reserves more rapidly by calling their day-to-day loans than by selling Treasury bills to the Bank of Canada and there was clearly an incentive to employ the new procedure rather than the old (7).

During the first week of the new experiment, an agreed rate of 1½ per cent was charged on day-to-day loans, so that the market would get off to an orderly start. Thereafter, the rates charged were determined competitively in response to general monetary conditions. Sometimes, a day-to-day loan may be allowed to "run on" at the same rate. In any event, the rates on loans already on the books may only be re-negotiated once each day. However, when the market is active, the rate on new loans may change from hour to hour. In order to centralise all the relevant information and to ensure that the market in day-to-day loans was developed on an "impersonal" basis (i.e. was in fact divorced from established banker-customer relationships) the banks agreed among themselves to communicate the rate established in any transaction involving $1 million or more to the "exchange broker" for the purpose of reference and record. Usually, but not always, the rate that had to

(7) Borrowing at the Bank of Canada is also a quicker way of securing central bank cash than selling Treasury bills to it, but it is more expensive and, in any event, the money must be borrowed for a minimum of a week. In addition, some of the chartered banks as a matter of principle, still dislike being in debt to the Bank of Canada and will employ almost any alternative rather than do so, especially if it means borrowing over balance dates. Even during 1956, when the banks were under pressure to build their liquid assets ratio up to a minimum of 15 per cent of deposits (see below), Bank of Canada advances to the chartered banks were not on an average a major source of cash reserves. "In 1956 advances to chartered and savings banks were outstanding on 105 out of 254 business days. On a daily average basis for the whole year advances were $8 million as compared with total cash reserves of $873 million. The maximum amount of advances outstanding on any one day was $60 million". (Bank of Canada, *Annual Report*, 1956, p. 44). Under existing arrangements, advances are made against the hypothecation of appropriate securities for a fixed period of 7 days. The first advance in any calendar month (up to an amount specified for each bank) bears interest at Bank rate. A second advance to the same bank, the renewal of an advance, or an advance in excess of the specified amount attracts interest at a rate higher than Bank rate. (*Ibid.*, pp. 44-5).

be paid on day-to-day loans was slightly below the tender rate on 91-day Treasury bills, so that dealers were generally able to carry inventories in this security without loss.

In order to encourage the dealers to carry as much inventory as was consistent with the available supply of day-to-day money and as a means of underwriting the experiment, the Bank of Canada stood prepared to act as "the post of last resort". Not being specifically authorised to lend to dealers, the Bank arranged to make accommodation available up to negotiated limits (8) to certain dealers on the basis of a sale and repurchase agreement, whenever it proved impossible to raise sufficient money elsewhere with which to carry inventory. Applications for such assistance must generally be made before 2 p.m. on any day (9). The cost of this accommodation was calculated as the difference between the prices at sale and repurchase, the rate charged being equivalent to Bank rate (10) and therefore in the nature of a penalty. These facilities, it should be emphasised, were accorded as a privilege and not as a right, and it was the responsibility of the dealer to tap every possible source of available money before going to the Bank, including not merely the chartered banks, but also the trust companies, the insurance companies, provincial treasurers, corporations, and foreign financial institutions. He should only apply to the Bank of Canada when he had exhausted all other alternatives. The use made of this facility has varied appreciably between the various dealing

(8) These limits might be re-negotiated from time to time, either on the application of the dealer concerned, or at the suggestion of the Bank of Canada, but always at the discretion of the latter.

(9) This time was chosen because of the necessity to allow a sufficient time margin to attend to the mechanical details of computation, since a sale and repurchase agreement is more complicated than a straight loan. Nevertheless, there is some flexibility. The Bank likes to have all borrowing applications in by 2 p.m. simply because a dozen dealers descending on them at the last minute (the Bank closes for banking business at 3 p.m.) could not be accommodated within the time available. Yet the partners of dealing firms know that as a matter of privilege they may be permitted to go to the Bank of Canada later than 2 p.m., possibly even at 3 p.m. One or two dealers might then be accommodated, whereas all of them could not.

(10) Prior to the introduction of the day-to-day loan market, it was possible to borrow from the Bank of Canada against securities with a maturity in excess of 3 years. In such cases, a rate approximately ¼ per cent *above* Bank rate was charged. When day-to-day loans were instituted and the supply of Treasury bills was expanded, this was no longer necessary and central bank loans against the longer-dated securities were discontinued.

houses, depending largely on the volume of business done. Some have been in the Bank with relative frequency; others only rarely (11).

Initially, the dealers' chief difficulty was to find customers for the bills they carried in inventory, since there were no established retail outlets. But gradually they were able to build up this side of their business mainly by selling bills to corporations. They were greatly assisted in this by the somewhat rigid attitude of the chartered banks in respect of withdrawals from fixed deposits. The large corporations were accustomed to keep their temporarily surplus funds on deposit with a chartered bank. If they needed their money earlier than they had anticipated, the chartered banks would release it from fixed deposit, but the latter would pay no interest, not even at a rate reduced to accord with the shortened maturity (12). This practice gave the dealers their opportunity and they attempted to persuade corporations to put such moneys into Treasury bills, which if the maturities selected turned out to be inappropriate could always be sold at a price that would secure them some sort of return on their investment. At that time, it was the practice of the banks to vary their rates on fixed deposits only infrequently and usually the rates allowed were well below the Treasury bill yield. However, after December 1955, the banks adopted a more realistic attitude and they now set a fixed deposit rate for amounts of $100,000 and over placed for 90 days or more at ¼ per cent below the most recent average Treasury bill tender rate.

Another facility that greatly assisted the dealers in developing retail outlets was the arrangement whereby the Bank of Canada would release securities at whichever of the Bank's nine agencies the dealer might stipulate. Thus, a dealer was permitted to sell Treasury bills (or bonds) to the Bank of Canada under an arrangement to repurchase and, when the securities were released on repurchase, the dealer could have them delivered at no cost to himself at any one of these points across the country and, if he

(11) Repurchase of the relevant securities may be made at any time within varying periods not exceeding 30 days. The average period has been 2½ days. In 1956, the Bank of Canada held securities purchased under resale agreements on 62 business days, the maximum amount outstanding on any one day being $37 million and the daily average for the year $2 million. (See Bank of Canada, *Annual Report*, 1956, p. 45).

(12) Usually, such moneys were fixed for 90 days. If a corporation found that it needed the money after (say) 85 days, it would pay it to borrow against the security of its fixed deposit for the remaining 5 days rather than sacrifice the interest for the whole period.

so wished, in separate parcels (e.g. part at Halifax, part in Calgary, and the remainder in Vancouver). Furthermore, since January 1957, any financial house has been allowed to hand in Treasury bills or short-term Government bonds at an agency of the Bank of Canada and to arrange for similar securities to be released the same day without charge at any other agency of the Bank of Canada.

One way of seeking out potential customers is to watch for new issues of bonds (e.g. by a public utility). It is quite apparent that on the day the bonds are delivered against cash the borrower will acquire large balances that cannot possibly be spent immediately. Formerly, such funds would as a rule have been placed in bank fixed deposits, but now the dealers offered Treasury bills as a means of absorbing moneys available for temporary investment. They would follow much the same procedure when tax payments began to come in to municipalities and provincial governments (13). Latterly, the dealers have had to be increasingly on their toes to attract this business from the corporations, because of the increasing competition of the finance houses, which sell their paper to corporation treasurers, usually through dealers that act as their agents. Moreover, the absence of a true market in this paper has been largely counterbalanced by offering a wide range of maturities (from one to twelve months) and denominations. Further, when money is tight, most of the finance houses have been prepared to repurchase their own paper in order to maintain a good market for it. Alternatively, if a finance house suddenly finds itself with a surplus of funds, it may well buy back its own paper ahead of maturity. Some dealers also act as agents in offering to corporate treasurers the promissory notes of other business corporations, a commission being paid by the borrowing corporation.

To an increasing extent, the banks themselves are becoming customers, selling Treasury bills to the dealers when they are short of cash and buying them when they require bills of particular maturities, or when they "miss" their quota of bills at the tender. They may also enter into "pre-tender contracts". Certain of the dealers,

(13) As yet there is no trading market in Canada for commercial bills, which in some centres in other countries still provide an alternative to investment in government paper. Commercial bills exist in Canada, but they usually remain in the portfolios of the chartered banks and are never sold. It is possible that a trading market in these bills could be developed, if the Bank of Canada were itself prepared to rediscount this type of paper.

though not all of them, have been willing to make a contract with a bank on the day of the tender, but before the tender results are actually known. Usually, the dealer undertakes to " confirm " to the bank a stated amount of bills at the average tender yield *minus* .02 in yield, subject to a bank not having to pay more than the high bid on a tender. For example, if the average tender rate turned out to be, say, 4 per cent, a bank would get its bills under a pre-tender contract at 3.98 per cent, unless (as may happen very occasionally) the high bid on the tender gave a yield of 3.99 per cent, when the dealer would have to confirm the bills to the bank on that basis. From the bank's point of view, a pre-tender contract is simply a hedge of its own judgment when the tender is likely to be tricky. But practice varies from one bank to another and the banks could undoubtedly make much greater use of the dealers' facilities than in fact they do. In any event, so long as they remain in the tender, the banks can to a considerable extent adjust their bill portfolios without resorting to the dealers at all, merely by tendering afresh, or letting bills run off, according to circumstances.

A lot of business is done by the dealers with their customers on a " buy-back " basis (14) similar to the Bank of Canada's purchase and resale facilities. This technique is usually employed when a dealer is unable to supply the particular maturity that an investor wants and it enables the former to use the longer term bonds in his inventory to meet the demand for a short-term investment, but it has the added advantage of providing a convenient and economical means whereby the dealer can carry additional inventory (15), especially when the buy-back contract permits substitution of securities during the life of the " buy-back ". Subsequently, a dealer may attempt to match his " buy-backs " with Treasury bills in inventory, so that when he is called upon to repurchase he has bills maturing to provide the necessary funds. However, Treasury bills mature only on Fridays and some dealers therefore feel that it is simpler to obtain the funds required by using the facilities of the money market on the day that the " buy-back " matures.

(14) Formerly, certain of the banks were also prepared to do " buy-backs " for their customers, but this practice was discontinued in 1955 at the request of the Bank of Canada.

(15) He would be anxious to do this if he felt that market prices were likely to move sharply upwards. By means of buy-backs, it is possible for a dealer to carry a heavier inventory in relation to his line of credit with the Bank of Canada, because only the amount of his day-to-day loans from the chartered banks is geared to this line of credit.

The " buy-back " technique also confers certain advantages on the customer, since he gets a tax advantage (16). Further, because of the agreement to repurchase, the risk of depreciation is borne by the dealer. Indeed, it is because of this risk that most dealers have been unwilling to do " buy-backs " for periods of longer than 60 days and certain of them refuse to do them at all. From the point of view of the dealer, the " buy-back " technique nevertheless represents a convenient means of meeting the specific maturity requirements of his customer, when the dealer is unable to sell outright securities that accord precisely with the term that the purchaser wants. Alternatively, dealers may from time to time borrow securities for the purpose of meeting an order. As the result of an agreement reached in February 1957 between the Bank of Canada and the dealers in government securities, the market facilities for borrowing such securities will now be supplemented by the Bank of Canada upon request. Under this arrangement, a dealer who is unable to borrow a particular security in the market at a satisfactory charge may borrow it from the Bank of Canada upon temporary deposit of other securities. Such a switch has to be reversed within a stated time limit, usually 30 days, though this period may be extended twice for a total currency of 90 days. The charge made for this service varies with the size of the transaction and is also increased by half on the occasion of each renewal. The provision of these switch facilities, which are also offered by other central banks (e.g. the Federal Reserve Bank of New York), was regarded as another step in the development of a mature and stable money market. So far, and despite their cheapness, these facilities have been used only sparingly.

Formerly, a barrier to the greater stimulation of dealer interest in broadening the market for Treasury bills was the charge made for " daylight overdrafts " by the chartered banks, otherwise known as " over-certification " (17). This might arise in several different

(16) A corporation pays tax only on the interest it receives on a bond and any capital gain is tax-free, i.e. when a buy-back is done in short-term Canada bonds the coupon is taxed, but the difference between the corporation's purchase price and the price at which the bond is repurchased by the dealer is not. However, this is not the case with Treasury bills, where the whole of the gain is taxable.

(17) A practice that had its beginnings in the dealers' need of bank certified cheques in connection with their underwriting operations. The nature of the service performed is most obvious in those cases where the banks over-certify cheques for stockbrokers on the basis of

ways. For example, if a dealer wished to repay a bank loan in order to release the security for sale, or to employ it as collateral for a new loan from another bank, he would require a certified cheque for the purpose. Again, no dealer can hold in his portfolio the whole range of maturities that may from time to time be demanded. Frequently, a dealer will be obliged to go out and buy up the particular security required by his customer. Since he would not normally have available the large sums of working capital necessary to finance these purchases in advance of sale to his customer, a " bridging " operation becomes necessary. The procedure, therefore, is for the dealer to request from his bankers a certified cheque with which to pay for the securities purchased, on the understanding that he will " cover " the amount before the end of the day with the proceeds of his sale of securities. At the time the new experiment was launched, the charge for " over-certification " was 1/100 per cent per diem, which was regarded by the dealers as prohibitive if they were to employ this technique as the means of facilitating extensive dealings in Treasury bills. The banks therefore agreed to reduce the " over-certification " charge to 1/250 per cent per diem. This rate was applied to all types of business — money market and " other " — but its existence continued to operate as a considerable impediment to the free flow of funds within the money market. In theory, the dealers should have borrowed on a day-to-day basis from the bank(s) offering the cheapest money, but when the cost of " over-certification " was taken into account, it was not always worth their while to respond to small changes in money rates. For this reason, they tended to remain tied to a particular bank, leaving elsewhere in the system unused pools of money, which in a less imperfect market would have been mopped up. Thus, there were occasions, when money was easy, where a reduction in the rate on day-to-day money of 1/8 to 1/4 per cent made no difference to the demand. There were two reasons for this: (i) the " over-certification " charge made

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a wide range of securities that the latter are in the process of purchasing. The charge made is therefore largely a reward for the assumption of an uncovered risk. To some extent, too, an interest element is involved, since in effect the parties for which cheques are certified are furnished with additional working capital for the purpose of acquiring the relevant securities, though if more than interim accommodation is required the " daylight overdraft " will have to be replaced later in the day by a secured loan on which interest proper will be charged.

it expensive for dealers to move from one bank to another in search of cheaper money, when no more than 1/8 to 1/4 per cent would be saved in interest; and (ii) especially in the earlier stages of the experiment, when funds were plentiful, dealers were loath to repay day-to-day loans because of the fear that " they would not be able to get back into the market " when money became short. These practices were by no means universal (18), but they were fairly general. The banks, too, were not always willing to " push their rates to the limit " and even when the demand for money was there the supply sometimes dried up when rates were still relatively low, the banks themselves being concerned not to " prejudice " good relations with their borrowing customers (19).

At the time, bankers were inclined to dismiss as unimportant the effects of the " over-certification " charge (20) and they stressed the methods that dealers had developed to minimise the charges they had to pay. Thus, to quote an example given by R. M. MacIntosh, suppose " a dealer has bid successfully at the Thursday treasury bill tender for $5,000,000 in new bills. These must be picked up at the Bank of Canada agency by 3.00 p.m. Friday... The dealer usually attempts to arrange his bank loans on Friday, and his ' cage man ' plans and executes the mechanics of the banking process, with the aid of one or more messengers to carry out the physical transfers involved. A dealer obtains a certified cheque for $1,000,000 at Bank A, paying $40 in over-certification charges;

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(18) At least one dealer maintained that he kept his borrowings from the banks " pure " and always took the cheapest loan.

(19) Cp. R. M. MacIntosh, " The Day-to-Day Loan Market in a Year of Easy Money ", *The Canadian Banker*, Winter, 1955, p. 34:

" In the first eight months, the day-loan rate was almost too steady, scarcely ever reflecting the rise and fall of cash reserves. Probably the main reason for this was the state of extreme ease in the money market, which meant that some of the 10 banks were always in funds which could be had at almost any rate. But one factor may have been a certain amount of rigidity on the part of both jobbers and bankers until experience was gained. In the early stages, the jobber tended to ask: ' Can you let me have $5,000,000? ' rather than: ' Can you let me have $5,000,000 at 1¼%? '. Likewise some of the banks seem to have been willing to push out day-loans irrespective of the yield. This has occasionally led to anomalous situations. For example, when the money-market became very tight on two or three occasions in late 1954, the day-loan rate went above 1¼% only once, although the Bank of Canada's discount rate was then 2% and several purchase and resale agreements were arranged at that price... Conversely, money was freely offered in early May, 1955, at ½%, although about 1¼% could be had on 91-day bills at that time. "

(20) See, for example, R. M. MacIntosh, *loc. cit.*, pp. 35-6.

he presents the certified cheque to the Bank of Canada agency, and receives delivery of $1,000,000 in treasury bills; with these bills as collateral, he obtains a day-loan of $1,000,000 from Bank B, C, D or perhaps A. He draws out the loan in the form of a certified cheque, and returns to the Bank of Canada for a second $1,000,000 in bills. This process is repeated three times more, and on the final trip the dealer pays off the original $1,000,000 over-certification at Bank A with his fifth day-loan of $1,000,000. He now has $5,000,000 in treasury bills at a cost of only $40 plus the day-loan rate plus insurance and messenger service. By the use of this roundabout technique, the jobber manages to cut down his over-certification charges appreciably. He can therefore scarcely contend that the over-certification rate is a barrier to flexible securities trading" (21). Yet though the dealers could partially evade the costs of "over-certification" in this way, it did seem to involve a large amount of seemingly unnecessary effort and to employ a degree of ingenuity that might have been more usefully applied elsewhere.

At first, the chartered banks were unwilling to make any further concession, but as from March 18, 1957, the banks agreed to waive completely their "over-certification" charges in respect of *bona fide* money market transactions, though the charge continued to be levied on "other" transactions (e.g. when securities are withdrawn for sale, or when securities are bought, or money is borrowed *outside* the banking system). Subject to a declaration as to the nature of the transaction (22), a dealer might apply to a chartered bank to have his cheque certified without charge for the purpose (i) of acquiring direct from any Canadian chartered bank or the Bank of Canada specified securities that are to be lodged as collateral for a day-to-day loan at the bank granting the certification; and (ii) of effecting delivery direct to the Bank of Canada of specified securities already lodged at a chartered bank as collateral for a day-to-day loan that has been called by the latter, when the Bank of Canada in its capacity as lender of last resort is itself prepared to

(21) *Ibid.*, p. 36.

(22) This is made on a slip affixed in duplicate to the cheque signed by the dealer applying for the free certification. There are spaces on the slip where the dealer can indicate the nature of the transaction. The original slip is retained by the bank certifying the cheque and the duplicate travels with the cheque to the payee bank, which then releases only the securities specified on the form.

make a loan to the dealer in question (23). At the same time, the chartered banks agreed to accept as collateral for day-to-day loans Government-guaranteed Canadian National Railway Bonds maturing within 3 years on the same basis as direct Government of Canada issues of similar maturity. Guaranteed railway bonds also became eligible paper at the Bank of Canada.

One of the most direct consequences of the elimination of over-certification charges on money market transactions has been the increase in the turnover of loanable funds. It is now worth the dealers' while to seek out the cheapest money available and to repay loans that are running at higher rates. Moreover, the greater degree of freedom with which money now moves has been reflected in the finer adjustment of rates. These are now changed in 1/8s rather than in 1/4s of one per cent.

Another cost that appears to have hampered the freer flow of funds is the insurance premium that has to be paid to cover the risk of loss when bills are moved "across the street". This particular impediment might have been overcome by establishing centralised clearing facilities. This would have permitted the parties merely to exchange entitlements to securities instead of the securities themselves, thus eliminating the need for insurance. Indeed, the possible provision of such facilities was actually discussed, but the suggestion was not proceeded with, because of the limited amount of inter-dealer trading and the belief that individual dealers could in any event so arrange matters as to minimise expenses.

II

One of the main bases of the new money market experiment was the provision of day-to-day loans by the chartered banks to enable the dealers to carry an inventory of Treasury bills. The

(23) In order that the securities can be released for delivery to the Bank of Canada, the loan from the chartered bank to the dealer must first be repaid. To effect repayment the dealer requires temporary accommodation by way of a "daylight overdraft". This is created upon issuance by the dealer of a cheque drawn on and certified, without charge, by the chartered bank itself. The proceeds of the cheque are applied against the day-to-day loan, thereby releasing the securities held as collateral. These securities are sold by the dealer to the Bank of Canada under a sale and repurchase agreement, the proceeds of the sale then being used to retire the "daylight overdraft" at the chartered bank.

tapping of chartered bank cash (24) for this purpose necessarily involved some revision of view with regard to the appropriate level of cash reserves that should now be maintained by the banks.

Prior to the revisions of the *Bank Act*, which became effective on July 1, 1954, the chartered banks were required to maintain on a daily basis a minimum cash ratio of 5 per cent of their total deposits (25), including their time and savings accounts. In fact, the banks often held reserves amounting to 10 per cent or more of total deposits. In other words, they continued to maintain a cash ratio close to their " traditional " 10 per cent and at month-ends this was regularly exceeded. Since the Canadian banks typically have extensive branch systems, the levels both of their cash and deposits were subject to a wide variety of influences. Furthermore, numerous branches at widely scattered points made it quite impossible to calculate the amount of cash required to satisfy their minimum requirements and to make the adjustments necessary to maintain them at that level. The banks were frequently obliged to base their estimates on informed guesses and they therefore allowed themselves a sizeable margin to ensure that their reserves would always be adequate. In any event, the authorities appear to have approved of these arrangements and would no doubt have been greatly perturbed if the daily ratio had fallen close to 5 per cent.

In 1954, the required minimum was raised to 8 per cent (26), but this was now to be maintained on the basis of the month as a whole. The ratio was computed by taking the average of a chartered bank's Canadian deposit liabilities at the close of business on the four consecutive Wednesdays ending with the last Wednesday but one in the preceding month. To this was related the sum of the bank's holdings of Bank of Canada notes (calculated on a basis similar to that for deposits) and the average amount of the bank's deposit with the Bank of Canada " at the close of business on each

(24) Chartered bank holdings of Bank of Canada notes, plus their deposits with the central bank.

(25) The cash ratio statutorily required for any one day was computed by relating the current daily cash figure to the daily average figure for deposit liabilities in the preceding month but one. In practice, the banks also watched their cash positions on a current basis as well.

(26) This might be increased, though only at intervals of a month, by steps of 1 per cent to a maximum of 12 per cent.

juridical day of the current month " (27). This made it possible for the banks temporarily to run down their cash provided they made it good later and maintained the required average minimum. In fact, the new arrangements left the banks with a certain amount of slack in their cash positions and, as they gradually brought their average cash ratios nearer to 8 per cent and accustomed themselves to working at a level close to the required minimum (a position they appear to have achieved by August 1955), they provided themselves with resources they could release to the dealers in the form of day-to-day loans.

One result of permitting the chartered banks to satisfy the required 8 per cent minimum cash ratio on the basis of the average for each month as a whole, with no carryover from one month to the next, is the tendency for easy money conditions to develop towards the end of the month. Thus, if the banks find by about the third week of the month that they are on average running above the required 8 per cent, for the remainder of the month they can afford to maintain their cash at slightly below 8 per cent and still achieve the required average for the whole period. In fact, no bank will wish to operate with too fine a margin and when money is very tight the banks are even less likely to risk running their cash down to minimum levels. Nevertheless, when money is relatively easy, it is not uncommon during the last few days of the month for money to be offered very freely in the day-to-day loan market as banks either individually or collectively endeavour to work down their average cash ratios to 8.1 or 8.2 per cent for the month as a whole. To the extent, therefore, that this influence operates, there is likely to be temporarily created an artificial condition of easy money, though no doubt the Bank of Canada will have attempted to cushion its impact by undertaking " smoothing out " operations (e.g. by placing less Government money with the chartered banks, or by selling securities from its own portfolio). However, to the extent that the chartered banks continue to behave in this way, it is probable that each such period of temporarily easy

(27) This formula was chosen, because it ensured that each bank would know when the month started exactly what its minimum average deposit at the Bank of Canada would have to be for that particular month. In addition, far less statistical work was required than with a formula based entirely on daily averages.

money will be followed by stringency in the early weeks of the next month, as the banks again begin to build up their average cash ratios in order to provide themselves with a margin of safety. Whenever such artificial ease or stringency develops the rates on day-to-day loans will tend to move in sympathy, so that in some degree changes in rates at these times will merely reflect the mechanics of adjusting chartered bank cash such that the minimum requirements are met when averaged over the month as a whole.

Towards the latter part of 1955, total chartered bank holdings of liquid assets — cash reserves, day-to-day loans and Treasury bills — fell to low levels as the result of a loan demand that remained persistently high. With a view to exercising a tighter control over bank lending, the Bank of Canada in November 1955 got the chartered banks to agree to maintain on a daily average basis a 15 per cent minimum ratio of liquid assets to deposits, including the mandatory 8 per cent in cash. During the first half of 1956, total holdings of such assets were gradually brought up to this level, mainly by buying Treasury bills from the proceeds of sales of Government bonds, and from June 1956 onwards the required ratio was in fact achieved on a daily average basis in each calendar month. The main objective appears to have been a more adequate control over the banks' commercial lending, but the method employed may also have been chosen as a means of ensuring that an appropriate amount of activity was maintained in the short-term money market, by requiring the banks to hold at least a minimum total amount of Treasury bills and day-to-day loans. In fact, during 1957, this minimum was regularly exceeded.

Day-to-day loans are made in minimum amounts of $100,000 against the security of Treasury bills and short-dated Government bonds (i.e. up to three years' maturity). Dealers that want to borrow day-to-day money ring up the banks to see whether they have money to lend. Likewise, a bank that wants to " call " a loan will telephone the dealer concerned. The banks may also wish to buy or sell Treasury bills, but it is not usual for enquiries relating to bills to be made at the same time as those concerning day-to-day money. As indicated earlier, if loans are to be " called " or repaid, this must be done by 12 noon, but new money may be lent up to the close of business at 3 p.m. Indeed, on a very busy day with funds coming in late, a bank may be lending up to 3.30 p.m.

Although it is not usual for the chartered banks themselves to fix formal limits for loans to individual dealers, it has been agreed that the total of a single dealer's day-to-day loans *plus* his borrowings from the central bank must not exceed his borrowing limit with the Bank of Canada, which ensures alternative sources of funds with which dealers may carry inventory of an approved maximum size. However, no limit applies to borrowings outside the banking system.

The lines of credit with the Bank of Canada must be renewed by the dealers each month. Occasionally, a dealer may secure a temporary increase in his limit. Thus, a dealer may find that he is holding more securities than he can conveniently carry and the Bank may agree to provide the necessary help subject to an undertaking by the dealer that he will cut his position to the required extent within a stipulated number of days. In the course of time, a dealer may feel that he needs a permanent increase in his limit and he may apply to the Bank in these terms, but the ultimate decision rests with the latter. For the dealers as a whole, the line of credit has already exceeded $150 million. The purpose of granting these limits was effectively to demonstrate how and to what extent the liquidity of the market would be ensured.

The dealers' lines of credit, it should be observed, have never been the subject of a written agreement. The arrangements between the dealers and the Bank of Canada are purely verbal, but without exception the dealers have consistently honoured their undertakings. Nevertheless, there has been some policing by the authorities. Every week (28), each dealer must report to the Bank of Canada the details of his inventory of Treasury bills and short-term Canada bonds, including anything he has outstanding against a repurchase agreement. In addition, the Bank will want to know the amount of the dealer's outstanding loans both from the chartered banks and from outside lenders, as well as his total turnover for the past week.

(28) For purposes of convenience, half the dealers report on Wednesday afternoon and the rest on Thursday morning.

III

Since January 1953, the Ministry of Finance has called a tender for Treasury bills each week. Notice of the offering to be made is given a week in advance and only "primary distributors" are invited to participate. This means that in Canada the tender is restricted to the banks (including the Bank of Canada and the savings banks) and the dealers. Outside parties (such as non-financial corporations) are therefore obliged either to arrange for a bank or dealer to tender on their behalf (the actual tenderer usually deciding on the rate at which the bid will be put in) or to obtain their requirements in the market for issued bills. Nevertheless, the definition of "primary distributors" is wider than it might seem, since the dealers so included are numerically large (about 300) and not restricted to those that regularly "job" in bills. From January 1953 to November 1955, bills were issued for terms of 91 and 273 days. Over that period, therefore, there were 39 separate maturities of Treasury bills available for the investment of temporarily surplus cash resources and the parties concerned could select the maturity most appropriate to their needs without running a market risk of any kind. This step was taken at a time when the "outside" dealers (i.e. dealers other than the Bank of Canada) were not yet carrying an inventory of bills and efforts were being made to popularise their use by presenting as attractive a shop window as possible. As the public became more accustomed to them, the incentive of the larger number of maturities as well as a rate differential became less necessary and, in any case, the longer-dated Treasury bills never became really popular, this being primarily due to the increased availability of short-dated Government of Canada bonds, which were more suitable for short-term corporate investment because of their tax advantage (29). Gradually, the proportion of long-term bills issued was reduced — by increasing the amount of short bills offered and maintaining the weekly offer of 273-day bills at $10 million — and in November 1955 the offer of the latter was discontinued altogether.

(29) A holder of short-term bonds only pays income tax on the interest therefrom. When such bonds have been selling at a discount (as they were for a period of over two years) the increment as a result of buying at a discount and holding the bonds until they were redeemed at par was classified as a capital gain and as such free of tax.

Although the Ministry of Finance issues the call for the Treasury bill tender, the Bank of Canada acts as its fiscal agent. Tenders are on a discount basis (30) and may be made either on the official application form or by prepaid telegram to the Audit Department of the Bank of Canada before noon on Thursday of every week (31). Before putting in his own tender, each dealer will try to find out what the others are doing, but there is no "syndicate" as in London and the authorities, which want all the competition they can get, would not welcome one, feeling that it would represent an expression of weakness. On occasion, a dealer or a bank may decide not to tender at all. Thus, when money is tight, the dealers will tend to cut their inventories to a minimum and will stay well within their credit lines for day-to-day loans, allowing most of the Treasury bill tender to go to the Bank of Canada. The chartered banks, too, especially at their year-end, may stay out of the tender in order to build up their liquidity and so make sure of not having to borrow at the Bank of Canada over the balance date.

Each tender submitted must be for an amount of $25,000 or multiples thereof (32), the price being stated per $100 to not more than three places of decimals. Most of the dealers and the banks "stagger" their bids, or put in what is called a "spread bracket", i.e. they tender for various amounts at different prices. This is done to make sure that they get some bills and that they do not pay too much for them. While it may be difficult to pick successfully a single price, it is fairly easy to choose the right price range. A representative of the Ministry of Finance calls at the Bank to accept the tenders, which are sealed (including that of the Bank

(30) Actually, price is based on present value rather than on simple discount, the formula being

$$\frac{100}{(1 + \text{interest}) \times \frac{\text{number of days}}{365}}$$

(31) The tender day is Wednesday when Friday is a holiday, Thursday then being the delivery day.

(32) The bills when issued are in bearer form and only in denominations of $25,000, $100,000 and $1,000,000. Dealers and banks must count both interest gains and trading profits as taxable income, from which they may deduct losses of any kind and costs such as interest charges on moneys borrowed for the purpose of carrying inventory. For bills in the hands of other individuals and corporations the difference between cost and selling price or proceeds at maturity is taxable income.

of Canada itself). The envelopes are then opened and the details tabulated, the allocation being made on the basis of the highest acceptable bids (i.e. the lowest yields). The Bank is responsible for advising tenderers whether they have been successful and for what amounts. It also announces the high and low tenders, and the average yield (33). Payment in full must be made to the Bank of Canada not later than 3.00 p.m. on Friday, the date of issue. Since payment for bills purchased is now made in clearing house funds, a paying bank will not lose cash through the clearing until the Monday (34). Provided arrangements were made at the time the tender was submitted, both payment for and delivery of the bills may be effected at any agency of the Bank of Canada, so that if a dealer wishes to have his bills delivered wholly or in part at (for example) Halifax or Vancouver this will be done.

The dealer starts trading as soon as he knows his allocation. First, he would telephone the banks, since they may have " missed " getting any bills at the tender, but be anxious to obtain some. In any event, the dealer will no doubt be interested to learn what he can about their position. The approach to the corporation treasurers usually comes later. On the Friday morning, the dealer must also arrange the day-to-day loans necessary to carry the bills he has secured.

The influence of the Bank of Canada's own tender (35) should not be overlooked. Indeed, the Bank's activities constitute the

(33) It is important that successful bidders should know what the average rate is, in order to determine whether bills have been bought cheap or dear. Furthermore, new bills are offered to customers on the basis of the average price. If the dealer did not know what the average rate was, he might make less profit than he deserved.

(34) Prior to January 1957, Treasury bills were paid for in Bank of Canada funds, with the debit coming against the bank on the books of the Bank of Canada on the Friday, the same day as that bank received credit for the proceeds of maturing bills. This was one reason for the popularity of " pre-tender contracts ", since bills bought from a dealer were settled in clearing house funds. Hence, a bank received the proceeds of maturing bills on the Friday, but would not have to face the loss of cash associated with new bills taken up on a pre-tender basis until the following Monday. In the absence of offsetting action by the authorities, this would have meant that for one working day the Bank of Canada would have been out of funds to an extent equivalent to the amounts owing by the banks on account of new bills bought by pre-tender contract. However, it recouped itself by drawing down in the normal proportions Government balances held with the chartered banks. Nevertheless, any bank that used extensively the pre-tender contract system could gain cash from the other banks for one day. Under the new arrangements, this is no longer possible.

(35) In addition to its ordinary bid, the Bank of Canada now always submits a " reserve bid ", though it is under no obligation to do so. This is done " to guard against a

dominant factor in both the bill and the bond markets. Although it has no foreknowledge of the other bids, since all are sealed, it will have had access to a wide range of relevant information. Much of this is given to the Bank by the dealers themselves. Apart from the regular weekly return, they are not compelled to report either their positions or the transactions they are putting through, though the Bank may sometimes telephone them and ask them. However, they do in fact furnish quite a lot of unsolicited information, presumably out of a desire to be " co-operative ". Furthermore, Bank of Canada men at the " listening posts " in Toronto and Montreal (which are linked with Ottawa in a three-way hookup) are very quick to pick up information as a result of the types of enquiries made.

The dealers in their turn receive a certain amount of information from the Bank of Canada and to some extent they also exchange information amongst themselves. They learn little from the discreet comments that emerge from the " listening posts " in the course of their regular conversations with the dealers. However, the Bank of Canada publishes statistics that are of some value to them. Thus, on the Thursday morning (i.e. *before* the Treasury bill tender), the Bank of Canada issues its Statement as at the day before and this provides them with an overall view of the monetary position, though they will have to work out for themselves where the " pools " of money might lie. In addition, they will have seen the previous Friday the Weekly Money Market Statement and the Weekly Statement of the chartered banks' position, which is more or less in balance sheet form and relates to the figures for the week ending on the preceding Wednesday, though it must be admitted that these figures may by then have little more than an historical interest. At the same time, there is reason to believe that, particularly during the earlier stages of the experiment, the dealers might have used more expertly the statistical information made available to them. For example, it is not sufficient merely to look at the Bank of Canada's holdings of securities (as some of them were inclined to do), since changes in other asset and liability items

situation in which the tenders of other bidders might not be for sufficient quantities to provide a market for the entire issue... This practice is known to the market and it ensures that no group, even if it were so inclined, could by boycotting the issue force a large increase in the interest rate on treasury bills ". (See Bank of Canada, *Annual Report*, 1956, p. 48).

may also reflect action taken to influence the level of the chartered banks' cash reserves.

Despite the strong position of the Bank of Canada at the Treasury bill tender, it must not be overlooked that in determining what quantity of bills it should aim at in the tender it may be influenced by considerations quite unlike those of the chartered banks or of the dealers. What the Bank decides to do at the tender must be consistent with its operations in the open market and with central bank policy as a whole. In its dealings in "old" bills, too, it will tend to reveal the direction in which its policies are moving. Although the Bank has never been known actually to refuse the bills offered for sale to it, it does from time to time demonstrate the degree to which it is a ready buyer or seller by widening (or narrowing) the margin between its bids and askeds (i.e. it reserves the right to quote its own price). In any event, the spread must be reasonably wide, otherwise there would be very little turnover in the market, because people would go to the Bank instead.

The Bank of Canada does much of its trading from the dealing room in Ottawa, but contact with the two main sections of the market is maintained through the Securities Department's representatives in Toronto and Montreal (36). Trading hours are from 10.00 a.m. to 3.30 p.m., but the dealers may trade amongst themselves until 5.00 or 5.30 p.m. (37). Hence, the first task of the Bank representatives at 10.00 a.m. is to establish the "run" of opening quotes, which will be in line with the market's closing quotes of the night before. These may well be different from the prices at which the Bank itself closed at 3.30 p.m. the previous day. Consequently, it is only after these initial enquiries have been made that Montreal and Toronto can get together with Ottawa on a three-way hookup and establish the rates at which they are prepared to do business. Although there is often little direct contact

(36) The Bank's traders in these centres are not subject to the authority of the local agent. For large transactions, all final trading decisions are made by the dealing room in Ottawa, in consultation with one of the deputy governors who specialises on this side of the Bank's business. However, for small amounts — $100,000 to $500,000 — the local traders deal without prior reference to Ottawa, though they immediately report the transaction over the direct wire. Thus, the local traders are something more than mere "listening posts", since they actually "close" most of the trades that take place between the market and the central bank.

(37) There is, in fact, very little inter-dealer trading in Treasury bills. Generally, such transactions are confined to securing a specific maturity for delivery.

with the New York money market, Ottawa will also have called their dealers there to see what New York's opening position is like (38). Trading can then begin and the desk will remain open for business all day until the Bank records its closing quotes at 3.30 p.m. Activity tends to be heaviest in the morning, but all through the day the Bank in Ottawa will be filling out the picture of the money position, the information coming in to it mainly from the dealers through its "listening posts" in Toronto and Montreal. It is on this basis that the Bank conducts its "smoothing out" operations with which it must continuously support any "policy" action it may from time to time decide to take.

IV

The main objective of introducing the money market experiment was to ensure the more efficient employment of short-term funds. Over a long period of years, the cash balances of the chartered banks had been subject to considerable fluctuations. For this reason, the banks became accustomed to work to a cash ratio which tended to be greatly in excess of the required 5 per cent of deposits. This provided a buffer to absorb the impact of sudden

(38) At times, the Bank of Canada as agent for the Ministry of Finance will itself be the instrument of direct contact. For example, the Exchange Fund Account may have temporarily surplus funds to invest in New York and, in order to acquire U.S. Government securities, the Bank of Canada will need Federal funds (entitlements to balances with a Federal Reserve Bank) to pay for them. It is this type of mechanism that provides the bridge between the two markets. In addition, many Canadian dealers have offices in New York and the chartered banks (and the insurance companies) also move funds between the two centres. Longer-term rates will be subject to the influence of the not inconsiderable capital movements that over a period of years have taken place between the two countries and movements in these rates will have some effect on short rates as well. Capital movements have frequently been sufficiently large to completely swamp the more fundamental influence of the important trading connections between the two countries. At the same time, and especially since Canada adopted a floating rate for her dollar, the exchange risk (and, when it applies, the cost of forward cover) will be sufficient to explain not only why the rates in the two markets often diverge but also why they are sometimes found to move in opposite directions. One would expect developments in the United States to have only a lagged effect in Canadian markets, but this tends to be accentuated by the failure of operators to take the fullest possible advantage of the arbitrage profits that offer. Sometimes, the margins become quite wide without the market's stepping in to eliminate them. Ultimately, the markets do adjust, but at times there is quite a lag. This suggests that considerable inertia still remains, though as specialist expertise develops this should become less marked. Similar links exist with London, though these are much less well developed than with New York.

changes in their cash positions. However, this practice had two consequences: (i) it tended to create idle pools of cash in the hands of the banking system; and (ii) because of the variability of their cash holdings, the banks (and other financial institutions) responded only slowly to the attempts of the central bank to influence the distribution of their assets. By reducing the proportion of total assets actually held in cash and providing a mechanism whereby the banks could readily adjust their positions, it was hoped that the market would become more sensitive to central bank action.

The widening of the market — by increasing the number of issues dealt in and drawing in outside investors (such as the non-financial corporations) — was another means to the same end. The broader the market the more likely was it that securities could be readily realised without substantial loss (39), thereby adding to the liquidity of market paper. Again, such a market would provide the central bank with increased scope for operations in pursuit of its policies.

The problem was how to provide an appropriate mechanism. The key to a solution was found in the investment dealers, whose activities were concentrated mainly in the new issue and government bond markets. Here was a form of expertise that might be employed with advantage in fostering the growth of a short-term money market. Initially, they were encouraged to hold larger inventories of short-dated Government securities with the assistance of the Bank of Canada itself. As a result of this "training programme", certain of the dealers emerged as candidates for the efficient employment of the day-to-day loans that the chartered banks were now requested to make to them for the purpose of carrying and placing what was to be an expanding issue of Treasury bills. This provided the banks with an outlet for their cash, which could now be lent overnight and called next day, besides ensuring an adequate supply of marketable and therefore highly liquid securities, viz. Treasury bills, in which any investor could employ funds for short periods, selecting from among a number of maturities that which would most nearly meet his needs.

(39) Even so, fairly substantial losses may be incurred at times when the whole level of interest rates is moving upward and, indeed, it may well be an objective of central bank policy to discourage sales of securities by countenancing or even inducing such changes.

In the absence of this artificial stimulus, it is unlikely that Canada would have had a short-term money market for a long time to come. Even now, the market is still fairly small, but the progress made so far has been encouraging. At first, it was something of a hothouse plant, liberally fed with cheap money. Subsequently, it had to withstand the rigours of much tighter monetary conditions and rates increased in consequence. On a number of occasions, too, it was expensive to carry Treasury bills. This was especially true of the period March-August 1957, when more than once the margin between the yield on three-months Treasury bills and the rate on day-to-day money not only disappeared, but even became negative. Nevertheless, the total of Treasury bills outstanding, which was only $425 million at the end of January 1953 was first increased to $650 million (at which level it remained for over a year) and then expanded progressively at rates generally varying from $5 million to $15 million per week to $1,725 million in September 1956. Thereafter, there was some decline, followed by a period of stability at $1,625 million from March to mid-August 1957.

However, this only provides part of the picture. Such a large volume of bills could not have been successfully carried without a considerable increase in the holdings of the banking system (including the Bank of Canada). In part, this was due to the decision of the authorities requiring the chartered banks to maintain a 15 per cent liquid assets ratio, but it has been accompanied by a disquieting fall in the holdings of "other investors". At the same time, the volume of day-to-day loans (which is the basis of dealer activity) recovered somewhat during 1957, despite the difficult money position that obtained for most of the year. The greater reliance of the dealers on day-to-day loans from the chartered banks may have been a consequence of the change in the method of fixing Bank rate introduced in November 1956. Previously, the Bank of Canada had followed the practice of fixing Bank rate from time to time at a level that would generally be in excess of the Treasury bill rate.

The underlying philosophy was that general monetary conditions should be influenced by action taken in the open market. Necessarily, this would have effects on interest rates, but the Bank was not concerned to attempt the imposition of a specific structure of rates; relationships between rates were to be established by the

working out of market forces. At the same time, since the Bank was the lender of last resort, it was obvious that Bank rate could not for long be as low as the interest rate on the most liquid form of security in the market, viz., Treasury bills. For if the Treasury bill rate were to rise above Bank rate for any length of time, so that the cost of borrowing from the Bank was less than the return on Treasury bills, there would be an incentive to rely on central bank accommodation in order to carry Treasury bills rather than to use money market facilities. Hence, whenever the Treasury bill rate approached or temporarily exceeded Bank rate, the latter would be pushed up to restore the customary relationship.

" In 1956 the Bank Rate was increased from 2¾ per cent to 3 per cent on April 4th, to 3¼ per cent on August 9th and to 3½ per cent on October 17th. This procedure gave rise to some misunderstanding; in some quarters it was apparently thought that the central bank was setting or fixing or controlling interest rates of all kinds by its action in changing and publishing its own minimum lending rate " (40).

This the Bank of Canada was concerned to deny. It agreed that its day-to-day operations, including its loans to banks and to money market dealers would have an influence on the level of interest rates, but " generally in the direction of resisting rather than inducing or adding to movements of interest rates. In other words the Bank will normally be buying government securities on a declining market and selling on a rising market.

" In its day-to-day operations the Bank generally offers some resistance to changes in interest rates (in either direction) in the interests of maintaining orderly conditions in financial markets. However the Bank has always made it quite clear that the establishment or maintenance of any particular level of interest rates is not an objective of central bank policy. Its basic objective, as laid down by statute, is to manage the supply of money, that is, the total amount of currency and bank deposits, with a view to contributing both to economic growth and to general stability of prices " (41).

During the most recent period of tight money, the Bank of Canada apparently took no positive action to achieve greater stringency. It was content to allow the very strong demand for funds that had developed virtually to exercise its full effect on the rate structure. Only relatively small increases in cash reserves were permitted and banks and other financial institutions were therefore obliged to reduce their holdings of securities, thus forcing down bond prices and reducing yields. As a result of the method of fixing Bank rate adopted in November 1956, such that Bank rate would always exceed by ¼ per cent the average rate on 91-day Treasury bills at the most recent tender, the cost of borrowing at the central bank moved steadily upward in sympathy with the bill rate until Bank rate reached a peak of 4.33 per cent in the third week of August 1957. The chartered banks' interest rate on prime commercial credits was also raised at intervals from 5 per cent to 5¾ per cent, the latter rate becoming effective on August 26, 1957 — it could not go much higher, since the maximum rate that banks can legally charge on their loans is 6 per cent. Member firms of Canadian stock exchanges also announced a related increase in their rates on customers' " margin accounts ".

(40) See Bank of Canada, *Annual Report*, 1956, p. 45.
(41) *Ibid.*, p. 49.

Meanwhile, there were signs that the remarkable expansion that Canada had been experiencing over the previous two years was beginning to level out. To an important extent, this was due to a falling off in the demand for several of Canada's basic exports, such as wheat, lumber and wood products, copper, aluminium and oil, though it was expected that the decline in the external value of the Canadian dollar together with the easing of the credit situation across the border would help to improve the country's balance of trade with the United States. Internally, there was some running down of inventories, a fall in profits, an appreciable weakening in stock market prices, and an increasing concern about the prospects of heavier unemployment during the seasonally slack months of winter. It was this combination of factors that prompted an unobtrusive easing of monetary policy in the closing months of 1957. A fall in the yield on Government bonds had begun in late August, but at first this was attributed to the central bank's normal habit of preparing the way for a refunding operation. This was completed on October 1. Only then did the market begin to realise that a cautious easing of monetary conditions was in progress, since the Bank of Canada now made no effort to withdraw the additional money it had created. Indeed, it may be argued that it was the new technique of tying Bank rate to movements in the three-months

Treasury bill rate that effectively masked the changed direction of policy.

In a period of uncertainty, it was conceivable that this slowness of reaction (42) was advantageous, since there was always the possibility that the levelling off might only be temporary and that it would be followed by a resurgence of inflationary pressures. Nevertheless, a gradual easing could still have been effected by open market action, *supported* at the appropriate time by a clear signal to that effect in the form of an old-style cut in Bank rate. In other words, it may well be that the Bank's present techniques of monetary control have become over-sophisticated and that an attempt to educate the public in the significance of less frequent changes in Bank rate would have been more rewarding than merely resorting to semi-automation. Despite much current scepticism, changes in Bank rate can still exercise a most potent shock effect and have the additional merit of unequivocally indicating to the public at large any radical alteration in the direction of policy, as distinct from short-term aberrations within the money market itself. Indeed, it would seem that the techniques of credit control presently being favoured in Canada are only likely to be understood by the monetary specialists and, as we have seen, even they can at times be deceived.

V

When the new money market arrangements were first established, it was hoped that there would be a considerable widening of the market for Treasury bills in Canada and, in fact, that has been achieved. Since the middle of 1954, when the day-to-day loan was introduced, the volume of Treasury bills outstanding has been increased about two and one half times. Moreover, the Canadian money market has already demonstrated its ability to function effectively under conditions of varying degrees of monetary tightness. In addition to their relations with the banks, the dealers have also built up connections with non-bank lenders (e.g. business corporations) and, in a number of instances, these, too, have provided important sources of funds with which to carry inventory. To

(42) *E.g.* the chartered banks did not reduce the prime rate on their loans until the beginning of December 1957.

some extent, it is true, these non-bank loans to the money market have had the effect of diverting funds from corporation deposits with the banks and this was encouraged by the somewhat inflexible rate structure that was formerly applied to such deposits. Ultimately, the banks were obliged to take defensive action and, after December 1955, they therefore geared their rates on special fixed deposits to the most recent average weekly Treasury bill tender rate.

One of the chief limitations to the continued growth of the money market was the general application by the banks of an over-certification charge. For specifically money market transactions, this was abandoned in March 1957. Although the banks thereby lost a useful source of revenue, the elimination of this cost to dealers has led to the development of a much more flexible structure of short-term interest rates and to an increase in the turnover of dealer business, though the extent of the latter is not fully reflected in the published statistics.

Although the market has amply demonstrated its capacity to carry a larger volume of Treasury bills, there has more recently been a marked shift of emphasis in the distribution of Treasury bill holdings. In the earlier years, a significant proportion of the increase in the Treasury bill issue was absorbed by business corporations with surplus funds to invest. After March 1956, however, the demand from this source began to decline. This was no doubt mainly due to the tax advantage that corporations could obtain by placing their funds in short-term Government of Canada bonds rather than in Treasury bills. In addition, corporation treasurers also began to buy larger amounts of finance company paper as well as the notes of other corporations. Hence, more and more of the Treasury bills outstanding came to be held by the banking system. This is only partly to be explained in terms of the minimum liquid assets ratio that the chartered banks are now required to maintain and which they have consistently exceeded on a daily average basis since June 1956. Indeed, it appears that the banks have latterly been using the Treasury bill market to quite a significant extent as an alternative to day-to-day loans whenever the demand for the latter has been inadequate to absorb the funds available, or rates have not been sufficiently attractive. As a corollary, the banks have been employing the services of the dealers to a greater extent than heretofore in obtaining the Treasury bills that they require for their portfolios. This would suggest that the main market for Treasury

bills may come to depend primarily on a dealer-bank relationship, with business corporations supplying a larger proportion (probably on a buy-back basis) of the resources necessary to carry dealer inventories of bills and bonds.

In these circumstances, there may be a case for the eventual withdrawal of the chartered banks from the Treasury bill tender. At the moment, neither the banks nor the authorities appear to favour this move, believing that it is in the long-term interests of the market to foster as much competition as possible. Several of the banks also feel that they are able to get their bills more cheaply by putting in their own tenders rather than by buying bills subsequently from the dealers. Nevertheless, it is the view of the present writer that the withdrawal of the chartered banks from the Treasury bill tender would be the means both of further increasing turnover and of building up the strength of the market. If the tender were confined to the Bank of Canada and the dealers, a proportion of the latter might be expected to become specialists in money market transactions and, in the course of time, to develop a higher level of expertise than they possess at present. This should lead if not to cheaper services (since the turn on Treasury bill transactions is already very small) at least to the provision of a wider range of facilities (e.g. in terms of the choice of available maturities), which at the moment the Bank of Canada helps to provide.

There are also grounds for believing that such a change in tender arrangements would result in the dealers' carrying a larger inventory of bills, but this would not automatically follow. It would depend on the extent to which banks and other purchasers sought bills from the dealers immediately after the tender. However, if the banks in particular accustomed themselves to delaying their purchases of bills until these came closer to maturity, an increase in dealers' inventories would be inevitable. In these circumstances, too, the " turn " on bill transactions would cease to be the main factor in retaining dealer interest in the market. The dealers' chief source of income in this context would then become the margin between the yields on Treasury bills held in inventory and the rates of interest that had to be paid on moneys borrowed for the purpose of carrying them. Although this margin may at times be negative, earnings from this source should on the whole provide the dealers with more incentive to participate in the market than does the

difference between prices of bills at purchase and sale. Moreover, in addition to carrying the bills during the interim, the regular weekly issue of bills would result in the dealers' holding a related range of bill maturities. From these, purchasers could then choose whatever maturity best fitted in with their future commitments (e.g. at tax dates, or when outpayments were expected against mortgages). Furthermore, old bills because they are necessarily nearer to maturity are more liquid than new bills. Not only could the banks adjust more easily the run-off of bills maturing in their portfolios, but by holding a higher proportion of old bills they could effectively increase the liquidity even of their liquid assets. This would considerably add to their freedom of manoeuvre and enable them at all times to pursue flexible policies.

London J. S. G. Wilson

STATISTICAL APPENDIX

TABLE I

CANADIAN CHARTERED BANKS - CASH RESERVE RATIOS

Year	Jan. %	Feb. %	Mar. %	Apr. %	May %	June %	July %	Aug. %	Sept. %	Oct. %	Nov. %	Dec. %
1939 . . .	10.9	10.6	10.3	10.2	10.3	10.2	10.2	10.3	10.6	10.7	10.4	10.3
1945 . . .	11.5	11.3	11.3	11.7	11.3	11.6	11.4	11.6	11.2	11.3	11.2	11.5
1950 . . .	10.3	10.0	9.9	10.1	10.0	9.8	10.1	10.6	9.7	10.4	9.9	10.1
1951 . . .	10.2	9.4	9.8	10.0	9.8	10.0	10.4	10.3	10.5	10.4	11.0	10.9
1952 . . .	11.2	10.8	10.8	10.6	10.3	9.7	10.3	10.3	10.5	10.3	10.0	10.1
1953 . . .	10.8	10.7	10.5	10.1	10.1	10.1	10.1	10.1	10.1	10.1	10.0	10.2
1954 . . .	10.3	10.0	10.4	10.0	10.0	10.1	9.4	8.9	8.8	8.9	8.8	8.7
1955 . . .	8.9	8.7	8.6	8.5	8.4	8.3	8.4	8.3	8.2	8.3	8.3	8.2
1956 . . .	8.4	8.2	8.2	8.3	8.2	8.3	8.3	8.5	8.3	8.3	8.3	8.3
1957 . . .	8.2	8.2	8.2	8.2	8.2	8.2	8.1	8.3	8.3	8.3	8.2	8.2

Note - Figures prior to July 1954 are not strictly comparable with those that follow. For bases of calculation, see text.

TABLE II

CANADIAN CHARTERED BANKS - DAY-TO-DAY LOANS
(End of month)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	Millions of Dollars											
1954 . . .	—	—	—	—	—	56	68	52	63	102	101	68
1955 . . .	47	92	69	99	116	95	109	90	44	86	54	81
1956 . . .	59	82	75	43	64	97	109	68	114	85	64	74
1957 . . .	86	101	162	105	125	95	81	110	125	121	176	

TABLE III

CANADIAN CHARTERED BANKS - RATIOS OF LIQUID ASSETS TO TOTAL CANADIAN DEPOSITS

Year	Jan. %	Feb. %	Mar. %	Apr. %	May %	June %	July %	Aug. %	Sept. %	Oct. %	Nov. %	Dec. %
1954 . . .	—	—	—	—	—	—	13.8	13.7	14.0	14.4	14.1	13.3
1955 . . .	13.5	14.0	13.8	13.3	13.7	13.6	13.3	13.1	12.4	12.2	11.7	12.4
1956 . . .	13.1	14.2	14.3	14.6	16.0	16.2	16.1	16.4	16.6	16.4	16.4	15.9
1957 . . .	16.2	17.1	17.1	16.6	16.6	16.7	16.4	16.5	17.5	17.3	17.1	17.2

Note - Prior to June 1956, these ratios are calculated on the basis of the average of Wednesdays. From June 1956 onwards, they are based on daily averages.

TABLE IV

DISTRIBUTION OF HOLDINGS OF TREASURY BILLS
(par Value in Millions of Dollars)

Wednesdays	Bank of Canada	% of Total	Chartered Banks	% of Total	Other	% of Total	Total
1954							
July 28 . .	161	24.0	347	51.8	161	24.0	670
Aug. 25 . .	138	20.0	400	58.0	152	22.0	690
Sept. 29 . .	94	13.1	430	60.1	190	26.6	715
Oct. 27 . .	120	16.3	370	50.3	245	33.3	735
Nov. 24 . .	200	26.5	390	51.7	165	21.9	755
Dec. 29 . .	177	22.7	316	40.5	287	36.8	780
1955							
Jan. 26 . .	137	17.1	435	54.4	227	28.4	800
Feb. 23 . .	126	15.0	421	50.1	293	34.9	840
Mar. 30 . .	165	18.5	435	48.9	290	32.6	890
Apr. 27 . .	236	25.4	368	39.6	326	35.1	930
May 25 . .	196	20.2	424	43.7	350	36.1	970
June 29 . .	275	27.0	375	36.8	370	36.3	1,020
July 27 . .	282	26.9	407	38.8	361	34.4	1,050
Aug. 31 . .	242	22.5	419	39.0	414	38.5	1,075
Sept. 28 . .	251	22.9	364	33.2	480	43.8	1,095
Oct. 26 . .	303	26.5	317	27.7	525	45.9	1,145
Nov. 30 . .	303	25.9	328	28.0	539	46.1	1,170
Dec. 28 . .	264	21.9	416	34.5	525	43.6	1,205
1956							
Jan. 25 . .	234	18.4	480	37.6	561	44.0	1,275
Feb. 29 . .	341	23.8	564	39.4	525	36.7	1,430
Mar. 28 . .	444	28.2	573	36.4	558	35.4	1,575
Apr. 25 . .	336	20.5	727	44.3	577	35.2	1,640
May 30 . .	394	23.3	759	44.9	537	31.8	1,690
June 27 . .	465	27.5	795	47.0	430	25.4	1,690
July 25 . .	467	27.6	735	43.4	493	29.1	1,695
Aug. 29 . .	494	29.0	835	49.0	376	22.1	1,705
Sept. 26 . .	521	30.2	806	46.7	328	19.0	1,725
Oct. 31 . .	560	32.6	794	46.2	366	21.3	1,720
Nov. 28 . .	532	32.3	741	45.0	372	22.6	1,645
Dec. 26 . .	519	32.7	752	47.4	314	19.8	1,585
1957							
Jan. 30 . .	418	26.7	807	51.6	340	21.7	1,565
Feb. 27 . .	437	27.2	811	50.5	357	22.2	1,605
Mar. 27 . .	482	29.7	805	49.5	338	20.8	1,625
Apr. 24 . .	503	31.0	769	47.3	353	21.7	1,625
May 29 . .	474	29.2	814	50.1	337	20.7	1,625
June 26 . .	516	31.8	795	48.9	314	19.3	1,625
July 31 . .	505	31.1	797	49.0	322	19.8	1,625
Aug. 28 . .	549	33.6	819	50.1	267	16.3	1,635
Sept. 25 . .	461	27.9	926	56.0	268	16.2	1,655
Oct. 30 . .	538	32.5	795	48.0	322	19.5	1,655
Nov. 27 . .	460	28.0	808	49.1	377	22.9	1,645
Dec. 25 . .	472	29.0	798	49.1	355	21.9	1,625

Note - The sums of the detailed figures do not necessarily equal totals since the former have been rounded to the nearest million.

TABLE V

RATES ON DAY-TO-DAY LOANS AND TREASURY BILL YIELDS

	Average of Daily Closing Rates (Week ending each Wednesday) %	Average Yield 3-Months Treasury Bills (on following Thursday) %	Average Yield 9-Months Treasury Bills (on following Thursday) %
1954			
July	1.31	1.45	1.76
	1.25	1.39	1.72
	1.08	1.33	1.62
	1.00	1.35	1.62
August	1.18	1.34	1.62
	1.13	1.33	1.62
	1.05	1.32	1.61
	1.00	1.30	1.59
September	1.00	1.26	1.58
	1.00	1.24	1.56
	1.00	1.21	1.50
	.92	1.19	1.43
	.88	1.16	1.42
October	1.05	1.13	1.40
	.91	1.10	1.37
	.93	1.18	1.39
	.93	1.30	1.55
November	.88	1.20	1.50
	.75	1.19*	1.46*
	.75	1.16	1.45
	.75	1.13	1.44
December	.88	1.11	1.43
	.75	1.10	1.40
	.75	1.08	1.35
	.75	1.07	1.35
	.75	1.06	1.34
1955			
January	.75	1.05	1.33
	.75	1.03	1.29
	.75	.98	1.24
	.68	.88	1.17
February	.54	.84	1.13
	.50	.78	1.10
	.62	.86	1.14
	.83	1.13	1.21
March	1.00	1.07	1.25
	1.05	1.16	1.37
	1.15	1.20	1.43
	.98	1.13	1.34
	.85	1.09	1.29

	Average of Daily Closing Rates (Week ending each Wednesday) %	Average Yield 3-Months Treasury Bills (on following Thursday) %	Average Yield 9-Months Treasury Bills (on following Thursday) %
1955			
April	.72	1.08*	1.35*
	1.04	1.28	1.53
	1.25	1.29	1.56
	.98	1.25	1.52
May	.74	1.20	1.49
	.54	1.22	1.52
	.79	1.25	1.56
	.94	1.30	1.61
June	.95	1.31	1.62
	1.00	1.32	1.61
	1.12	1.34	1.61
	1.15	1.41	1.69
	1.20	1.44	1.71
July	1.13	1.44	1.69
	1.13	1.42	1.69
	1.10	1.41	1.70
	1.08	1.43	1.72
August	1.20	1.55	1.82
	1.33	1.59	1.82
	1.18	1.57	1.82
	1.45	1.70	1.96
	1.53	1.70	1.95
September	1.28	1.72	1.99
	1.73	1.78	2.03
	1.63	1.82	2.07
	1.80	1.83	2.10
October	1.68	1.85	2.16
	1.84	2.06	2.35
	2.15	2.16	2.48
	2.13	2.20	—
November	2.10	2.19	—
	2.13	2.23*	2.56*
	2.13	2.33	2.72
	2.33	2.57	2.90
	2.25	2.58	—
December	2.53	2.64	—
	2.38	2.60	—
	2.40	2.57	—
	2.38	2.56	—

	Average of Daily Closing Rates (Week ending each Wednesday) %	Average Yield 3-Months Treasury Bills (on following Thursday) %
1956		
January	2.47	2.59
	2.58	2.61
	2.58	2.57
	2.33	2.53
February	2.13	2.48
	2.20	2.49
	2.40	2.51
	2.48	2.52
	2.50	2.56
March	2.63	2.60
	2.63	2.62
	2.45	2.62
	2.58	2.64
April	2.56	2.77
	2.73	2.80
	2.63	2.86
	2.68	2.89
May	2.63	2.91
	2.63	2.90
	2.63	2.87
	2.69	2.78
	2.73	2.72
June	2.73	2.68
	2.80	2.67
	2.70	2.63
	2.48	2.52
July	2.28	2.40
	2.50	2.49
	2.65	2.57
	2.63	2.65
August	2.75	2.80
	2.83	2.97
	2.68	3.03
	2.50	3.00
	2.40	2.90
September	2.25	2.92
	2.80	3.05
	2.75	3.09
	2.88	3.16

	Average of Daily Closing Rates (Week ending each Wednesday) %	Average Yield 3-Months Treasury Bills (on following Thursday) %
1956		
October	2.80	3.21
	2.75	3.26
	2.90	3.34
	2.80	3.37
	2.90	3.34
November	2.75	3.33
	2.73	3.32
	3.05	3.44
	3.03	3.52
December	2.80	3.53
	3.15	3.59
	3.50	3.64
	3.25	3.67
1957		
January	3.25	3.65
	3.35	3.71
	3.40	3.72
	3.35	3.72
	3.00	3.70
February	3.25	3.72
	3.40	3.75
	3.70	3.81
	3.55	3.76
March	3.50	3.72
	3.75	3.73
	3.65	3.69
	3.70	3.70
April	3.55	3.69
	3.73	3.71
	3.75	3.73
	3.71	3.75
May	3.73	3.76
	3.80	3.78
	3.75	3.78
	3.72	3.76
	3.53	3.76
June	3.70	3.79
	3.85	3.79
	3.83	3.80
	3.83	3.81

	Average of Daily Closing Rates (Week ending each Wednesday) %	Average Yield 3-Months Treasury Bills (on following Thursday) %
1957		
July	3.69	3.81
	3.85	3.81
	3.75	3.81
	3.58	3.80
	3.75	3.81
August	3.88	3.92
	4.08	4.03
	4.00	4.08
	3.55	4.03
September	3.16	4.01
	3.20	4.00
	3.03	3.93
	2.45	3.80
October	2.95	3.84
	3.85	3.87
	3.81	3.88
	3.65	3.83
	3.60	3.80
November	3.65	3.79
	3.50	3.74
	3.38	3.51
	3.53	3.58
December	3.70	3.67
	3.75	3.67
	3.70	3.64
	3.25	3.62

* Tenders received on the Wednesday in equivalent week.