

A proposed framework for the implementation of monetary policy in the Large Value Transfer System environment

Discussion Paper 2

1 March 1996

Introductory note

On 23 November 1995 the Bank of Canada issued its first discussion paper on a proposed framework for the implementation of monetary policy in the Large Value Transfer System environment. Following the release of that paper, the Bank consulted with a broad group of financial market participants. These consultations and further study have resulted in the elimination of certain options presented in Discussion Paper 1 and in a clearer definition of some of the Bank's operations.

The main changes outlined in Discussion Paper 2 concern:

- *The target rate for the overnight interest rate* - the means by which the Bank of Canada would announce its target for the overnight interest rate within the 50-basis-point operating band
- *The process for neutralizing government and Bank of Canada flows* - the use of government deposits (rather than buyback operations of securities) to neutralize the effects of such flows on the supply of settlement balances
- *The treatment of balances from the process of clearing paper-based payment items* - retroactive settlement for the daily clearing of paper-based items; specific interest rates for positive and negative balances resulting from the paper clearings at the Bank of Canada.

Executive summary

In implementing monetary policy, the Bank of Canada operates through its influence on the overnight interest rate. The Bank sets a 50-basis-point operating band for this rate and designs its actions to hold the rate within this band. Changes in the overnight rate, and in the Bank's operating band, are the first stage in the transmission mechanism whereby the monetary policy actions taken by the Bank affect total spending in the economy and, ultimately, inflation.

The method used by the Bank to implement monetary policy is closely linked to the system through which payments clear and settle on a daily basis. Currently, these payments are mainly in the form of cheques and other paper-based items, which clear overnight and are settled on a retroactive (back-dated) basis. Therefore, those financial institutions directly engaged in the final settlement of payments do not know the outcome of the daily clearings, or the end-of-day level of their settlement balances at the Bank of Canada, until the following morning. This uncertainty is currently central to the framework within which the Bank acts to influence the overnight interest rate.

The Bank is now making preparations for the new electronic system for the transfer of large value payments (the Large Value Transfer System or LVTS) that the Canadian Payments Association expects to introduce in the first half of 1997. Among other things, this system will permit participating financial institutions to track their LVTS receipts and payments throughout the day and to know the net outcome of these flows by the end of the day. As a result, a significant part of the current uncertainty regarding settlement balances at the Bank will disappear. Hence, following the introduction of the LVTS, a new approach to monetary policy implementation will be needed.

The attached discussion paper sets out a proposed framework for implementing monetary policy in the LVTS environment. The key feature of this framework would continue to be an operating band of 50 basis points for the overnight interest rate. However, under the proposed system, the limits for the band would be defined differently. The upper limit would be the Bank Rate, the rate the Bank would charge to participating financial institutions requiring an overdraft loan to cover a deficit following settlement of the LVTS at the end of the day. The bottom of the band would be the rate at which the Bank would remunerate surplus

settlement balances of participating institutions at the end of the LVTS day. These arrangements would discourage transactions in the market for overnight funds at rates higher or lower than this band.

Changes in this operating band and, hence, in the Bank Rate, would typically be announced early in the morning. In addition, the Bank would signal a desired overnight rate within the band. Any change in the target rate would be announced early in the morning. This target rate would be the level at which the Bank would be prepared to directly intervene at midday in the market for overnight funds with either Special Purchase and Resale Agreements (SPRAs) or Sale and Repurchase Agreements (SRAs).

In practice, end-of-day deficits or surpluses in the settlement balances held by participating financial institutions at the Bank of Canada should be very small. The proposal includes a pre-settlement trading period for these institutions, following the close of client business, to allow them to undertake transactions to eliminate deficits or surpluses. Typically, the Bank would set the total level of balances for the system as a whole at zero.

The attached paper also deals with two important technical matters raised by the introduction of the LVTS system. First, the impact on the level of settlement balances of the Bank's own transactions and of the flows of federal government payments through the Bank of Canada, would continue to be neutralized through the transfer of government deposits rather than open market buyback operations. The second matter is the treatment of the clearing results of the remaining paper-based payments. The net clearing outcome of paper payments for a given day would be dated that same day on a retroactive basis following the clearing process, as is currently the case. The Bank would set specific interest rates for any positive or negative balances that result from the paper clearings.

1 Focussing the framework

The Canadian Payments Association (CPA) is currently working towards introducing an electronic system for the transfer of large value payments, the Large Value Transfer System (LVTS), in the first half of 1997. The Bank of Canada recently proposed a framework for monetary policy implementation in the LVTS environment that would allow the Bank to influence the overnight interest rate in a simple and transparent manner (Discussion Paper 1, released on 23 November 1995). [1] This framework has been designed to encourage participants to deal directly with each other and with the market in general, rather than with the Bank of Canada, when they adjust their surplus or deficit positions. [2]

The framework for monetary policy implementation set out in this discussion paper expands on certain topics and eliminates some of the options outlined in Discussion Paper 1. The main changes concern:

- *The target rate for the overnight interest rate* (Section 2.3) - the means by which the Bank of Canada would announce its target for the overnight interest rate within the 50-basis-point operating band
- *The process for neutralizing government and Bank of Canada flows* (Section 3) - the use of government deposits (rather than buyback operations in securities) as the instrument to neutralize the effects of such flows on the supply of settlement balances
- *The treatment of balances from the process of clearing paper-based payment items* (Section 4) - retroactive settlement for the daily clearing of paper-based items and specific interest rates for positive and negative balances resulting from the paper clearings at the Bank of Canada.

2 Key features of the proposed framework

2.1 Operating band

As the centrepiece of its policy implementation, the Bank of Canada would announce a 50-basis-point operating band for the overnight interest rate in the money market. [3] The upper and lower limits of this band would be established by the rates applied to the deficits and surpluses of the participants with the Bank of Canada following settlement of the LVTS, rather than through the rates signalled by open market operations in the overnight market as is currently the case. [4]

The rates applied to participants' positions with the Bank of Canada would be expected to establish the boundaries of the operating band for the following reasons:

- Deficits on the books of the Bank of Canada at the end of the LVTS day would be financed at the Bank Rate, defined as the upper end of the operating band, by a collateralized overdraft as per existing rules. That is, participants would be able to finance a deficit at the end of the day at the Bank Rate upon presentation of eligible collateral to the Bank of Canada. This would likely put a cap on the rates they would be prepared to pay during that day for overnight borrowings in the market.
- Participants with surplus balances at the end of the LVTS day would receive interest on those balances at a rate 50 basis points below the Bank Rate, i.e., the bottom of the operating band. [5] A participant would therefore be unlikely to accept a lower rate on its overnight funds from a borrower in the market. Thus, the floor on overnight rates would probably be the Bank Rate less 50 basis points.
- Changes in the operating band, and hence in the Bank Rate, would typically be announced at 8:45 a.m. on the effective date. [6] In the event of a shock during the day that required an immediate policy response, the Bank would announce a change in the operating band effective the next day. Although in this case, overnight rates would not reflect the new operating band until the day after the announcement, short-term rates, e.g., at the benchmark 1- and 3-month maturities, would adjust at once. In both cases, the rates applicable to accounts at the Bank of Canada at the end of the day would be known with certainty by money market traders early in the day.

2.2 Pre-settlement trading

As explained in Section 3, the overall supply of settlement balances would be precisely controlled by the Bank of Canada. In general, the level of settlement balances in the system would be maintained at zero each day so that overnight rates in the market would typically be within the band and not at the boundaries.

The LVTS would have a *pre-settlement trading period* of about half an hour, after the close of client business (6:00 p.m.). Pre-settlement trading would allow each participant to achieve a zero balance, regardless of the distribution of client payments. Participants in surplus as a result of client transactions could lend to those with deficits, and movements in interest rates would be constrained by the limits of the operating band.

2.3 Target rate for the overnight interest rate

Within the operating band of the proposed system, the Bank would signal a specific *policy target rate* at which it would be prepared to enter into Special Purchase and Resale Agreements (SPRAs) or Sale and Repurchase Agreements (SRAs).

- At a regular time in the morning, say 9:00 a.m., the Bank would indicate the level at which it would be prepared to enter into open market transactions in the overnight market. Once a target rate is established, the Bank would make a 9:00 a.m. announcement only to indicate a change in the rate.
- At 11:45 a.m., if the overnight rate was above the indicated target level, the Bank would enter into SPRA transactions. That is, the Bank would offer to transact SPRAs with jobbers in amounts up to their individual predetermined limits. Conversely, if overnight rate was below the indicated target level, the Bank would enter into SRA transactions in amounts up to predetermined limits. If the overnight rate was trading around the target level, the Bank would not intervene.

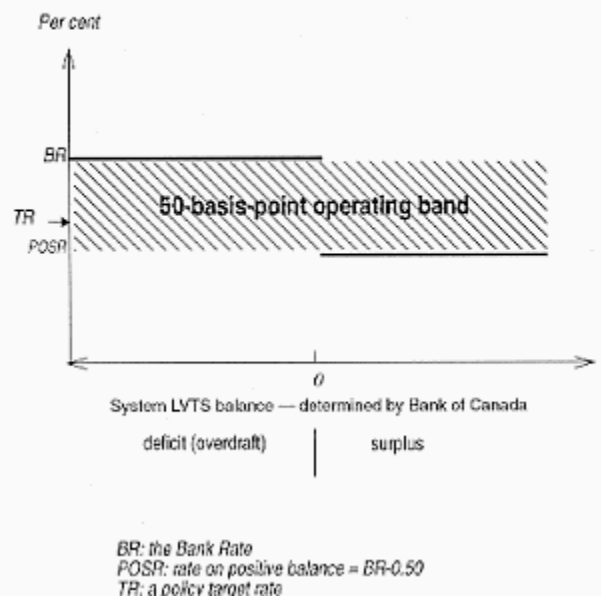
With the Bank indicating its target level early in the day and not intervening until midday, participants would be encouraged to trade with each other rather than with the Bank of Canada during the morning when a large proportion of daily funding activity occurs.

2.4 An illustration of the framework

The system framework is illustrated in Figure 1. The existence of a 50-basis-point spread between the rate charged on overdrafts (BR) and that paid on surpluses (POSR) would provide a fairly strong cost incentive for participants to adjust their positions in the market rather than to rely on the central bank facilities for end-of-day positions. The cost of overnight loans in the market would thus fluctuate between the rate on positive settlement balances and the Bank Rate. Since the typical spread between bids and offers on overnight funds in the market is not more than 1/8 per cent, in principle, it should always be possible for lenders and borrowers to negotiate a rate that is mutually more favourable than the rates available at the Bank of Canada at the end of the day. Thus, the rate spread at the central bank would encourage the participants to hold zero balances every day, and the Bank would expect only minimal use to be made of its end-of-day settlement facilities. If substantial overdrafts and positive balances were to become common, the

Bank would take this as evidence that the 50-basis-point spread was too narrow. In Figure 1, TR depicts a policy target rate, the level at which the Bank is prepared to transact either SPRAs or SRAs.

Figure 1
Operating band and policy target for the overnight rate



3 Process for neutralizing government and Bank of Canada flows

In aiming at a zero settlement balance for the system each day, the Bank would have to neutralize certain public sector flows that affect the financial system. These include all receipts and disbursements of the federal government as well as the Bank of Canada's own transactions. The government flows potentially affect settlement balances because the Bank acts as the government's banker. Thus, a net disbursement by the government at the end of the day would increase the settlement balances of the participating institutions in the absence of any offsetting transaction by the Bank; a net receipt of the government would reduce their balances.

Public sector transactions that affect the financial system fall into two categories: those that would be transacted on the LVTS and for which the Bank of Canada would receive full information at the time the actual payments were made (at the very latest); and those paper-based payments and receipts for which the Bank would acquire full information by about 3:00 p.m.

Transactions made through the LVTS would include foreign exchange intervention, issues and retirements of marketable government debt, the Bank's own open market operations and most large federal government disbursements and receipts. These transactions would settle either directly via the LVTS or through other clearing and settlement systems that themselves settle through the LVTS.

Paper-based items would include many smaller government transactions such as personal taxes, pension payments and Canada Savings Bond sales and redemptions. The Bank of Canada would be able to calculate the net effect of such government receipts and disbursements before the end of the day because the clearing institutions would continue to present such government items to the Bank by about 3:00 p.m. each afternoon, a practice known as pre-presentation. [7] Settlement for these items would take place the same afternoon, by means of one or a limited number of LVTS payments per participant. [8] These transfers would cover the payment obligations in favour of the participant or the government.

The Bank would therefore have full information on the net effect of all public sector flows affecting the financial system on a given day. It would neutralize the net receipt or disbursement accurately in its setting of the level of settlement balances for the system before the pre-settlement trading period.

3.1 Government deposits will be retained as the neutralization instrument

The transfer of government deposits, which has been the traditional instrument for neutralizing public sector flows and for setting the level of settlement balances in Canada, would continue to be used for this purpose.

However, the current *drawdown and redeposit mechanism* for transferring government deposits would have to be changed because, on a day with a net disbursement from the government, the Bank would not be able to "draw down," i.e., debit, the government's account with a participant. [9]

Auctioning government deposits to effect the transfer

The required change in the level of government deposits held by financial institutions to neutralize public sector flows would be equal to the difference between the total amount of government balances auctioned and the amount maturing.

- The government would continue to auction balances that were determined to be in excess of its daily operating requirements through a term deposit auction in the morning.
- A cushion of balances would be held to meet any unforeseeable daily transaction requirements of the public sector. Shortly after the actual net effect of Bank of Canada activity and the government's receipts/disbursements becomes known in the afternoon, the appropriate quantity of Receiver General deposits would be tendered to ensure a zero supply of settlement balances in the system. This quantity (equal to the cushion less unexpected net public sector payments for the day) would be auctioned after 4:00 p.m. for same-day settlement through the LVTS.
- The difference between the government's maturing and its new term deposits tendered at both the morning and afternoon auctions would neutralize the net government disbursements or receipts and any Bank of Canada flows for the day.

Interest rates on government deposits

Over time, competition and arbitrage in the market would ensure that the average rate of interest at the auction for one-day term deposits would be close to the going overnight rate. In any event, the tendered rates on any day should not go beyond the limits of the operating band.

A Tentative Market Timetable 8:45 a.m.

	Announcement of change in operating band (if any)*
9:00 a.m.	Announcement of change in target (intervention) rate
9:15 a.m.	Cutoff time for bids for Receiver General (RG) term deposit auction
9:30 a.m.	Release of RG term deposit auction results
11:45 a.m.	SPRAs or SRAs offered and transacted (if any)
3:00 p.m.	Presentation of government items to Bank of Canada
4:15-4:30 p.m.	Cutoff time for bids for RG deposit auction
4:30-4:45 p.m.	Release of RG auction results
6:00 p.m.	Close of LVTS client trades
6:00-6:30 p.m.	Pre-settlement trading

8:00 p.m.
or earlier

Settlement of LVTS balances at the Bank of
Canada

*A change in the operating band may be announced later in the day but would be effective the following business day.

4 Treatment of balances from the process of clearing paper-based payment items

4.1 Retroactive settlement

Paper-based payment items such as cheques are currently cleared overnight, using the Automated Clearing and Settlement System (ACSS). This system would remain in place. The institutions concerned have indicated to the Bank of Canada a strong preference for retaining retroactive settlement for cheques. (Discussion Paper 1 points out that the alternative -next-day settlement -which is the most common method in other countries, would also be acceptable to the Bank of Canada.)

4.2 Eliminating the calculation period (averaging period) for settlement balances

There is currently a calculation period, ending the third Thursday of a calendar month, over which a direct clearer must meet its cumulative settlement balance requirements. To induce the clearing institutions to aim at zero balances, the Bank of Canada charges Bank Rate for overdrafts and Bank Rate again for any end-of-period cumulative deficit, and pays no interest on positive balances. In this context, the role of averaging is to reduce the costs of random swings in the clearings, since surpluses on some days are offset against deficits on others in the same calculation period. Simply eliminating the maintenance period would imply that the direct clearers would pay twice Bank Rate on any daily overdraft, while receiving nothing on deposits.

However, the cost benefits of averaging could be replicated by treating ACSS settlement accounts similarly to LVTS accounts. The Bank would charge for overdrafts and remunerate positive balances at a given spread around the target band for the overnight rate. There would still be an incentive to target zero balances, since the cost of financing a deficit in the money market would be less than the cost of an overdraft at the Bank of Canada, while the return on surplus funds would be higher in the market than at the Bank of Canada.

The clearing institutions have indicated a preference for this system of charging for overdrafts and remunerating positive balances because of its operational simplicity.

4.3 Interest charges on the retroactive ACSS settlement balance

The rate spread at the central bank facilities for ACSS balances would be 250 basis points above and below the operating band, i.e., a charge of Bank Rate *plus* 2 1/2 percentage points for daily overdrafts, and a remuneration on positive balances equal to the LVTS positive balance interest rate *less* 2 1/2 percentage points.

4.4 Implications for the money market

Since the rate spread at the Bank of Canada is wider for ACSS balances than for LVTS balances, interest rates on overnight deals settled via the ACSS could vary over a wider range than those settled on the LVTS. However, the midpoint of both facilities would be the same and, on average, trading levels should converge to the centre of the band.

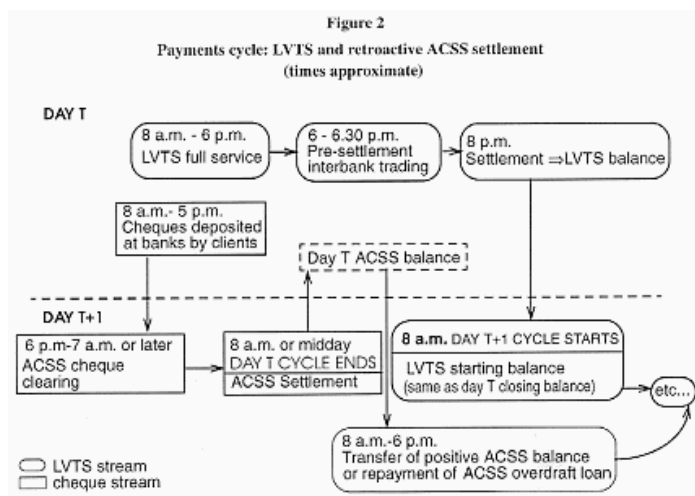
Most market-related wholesale transactions would be settled through the LVTS, and this is where the Bank would focus its monetary policy operations.

In this environment, participants wishing to offset expected gains or losses in the paper clearings could transact with each other in the interbank market, for settlement via ACSS, in order to avoid the costs of expected surpluses or deficits brought about by client transactions. [10] The Bank of Canada would not regard the interest rates emerging from these trades as significant indicators of the cost of overnight financing, especially as the market would be relatively thin and sensitive to transitory technical factors.

4.5 Payment cycle

The daily timetable of the payments system with the LVTS and retroactive settlement is illustrated in Figure 2. Paper-based payment items delivered to participants for credit on a given day would result in changes in the balances held at the Bank of Canada dated that same day, even though the clearing results would not be available, and settlement not completed, until the next morning. [11]

The ACSS balance for day T would be established after settlement on day T + 1 (e.g., at 8:00 a.m. or at midday). A participant with a positive balance could instruct the Bank of Canada to transfer that balance (plus accrued interest) to the LVTS on day T + 1. A participant with a negative balance would require either a collateralized overdraft loan from the Bank of Canada dated day T and would be required to repay that loan via the LVTS before the close of regular hours on day T + 1 with accrued interest or, to avoid posting collateral, it could repay the loan plus accrued interest before the official close of the ACSS. [12] In either case, the balance for the LVTS at the close of day T + 1 would effectively incorporate the ACSS balances (negative or positive) from day T.



Endnotes

1. Reprinted in the *Bank of Canada Review*, Winter 1995-1996.
2. The term *participants* is used in this paper for those members of the CPA who are direct participants in the LVTS. These institutions would settle directly on the books of the Bank of Canada.
3. The Bank of Canada currently calculates the average cost of overnight financing for non-bank jobbers as a measure of the overnight rate. Dealers obtain overnight funds from call loans, buyback arrangements (repos), and swapped foreign exchange funds. There is also a large overnight market for wholesale and interbank deposits, which are not collateralized, and which are not included in the Bank's measure. As a result of differences with respect to legal format, collateral requirements, etc., interest rates on the various overnight instruments may differ slightly. However, all the principal overnight rates move closely together because of market arbitrage, and the modest differentials are not important from the viewpoint of monetary policy. The Bank will consider changes to its measurement of the overnight rate to take account of the changing financial environment.
4. Currently, the Bank announces changes in its operating band by intervening in the money market with offers of Special Purchase and Resale Agreements (SPRAs) or Sale and Repurchase Agreements (SRAs) to signal the new upper or lower limit.
5. The end-of-day LVTS balances described in this paper should not be confused with the interest-bearing "Special Deposits" at the Bank of Canada. These Special Deposits are to serve as collateral in support of intra-day credit in the LVTS and in other clearing and settlement systems that clear or settle payment obligations.

6. All time references are to eastern time.
7. As is now the case, paper-based items not presented to the Bank of Canada by the 3 p.m. cutoff would remain with the financial institution overnight and therefore would not affect the level of settlement balances in the system on that particular day.
8. Ideally, a single payment order would be made to cover the netted payment obligation in favour of either the government or the participant. There may, however, be some system restrictions that would require, at the very least, a net disbursement and a net receipt transfer.
9. In the current system, direct clearers bid each week for a share of the government's daily demand balances, i.e., the quantity is unknown. Government balances at the financial institutions can be increased (redeposit) or reduced (drawdown). The LVTS is a "credit-push" rather than a "debit-pull" payment system, i.e., a system where the payer's financial institution initiates the transfer of funds to the payee's institution, rather than the reverse as is the case with the current mechanism for clearing payment items.
10. Deficits and surpluses among the clearers from the ACSS would automatically sum to zero, since all government and central bank items would clear through the LVTS (as described in Section 3).
11. In the context of the LVTS, a CPA working group is considering advancing the close of the ACSS cycle to 8:00 a.m. from the current midday settlement.
12. Effectively, the loan would be repaid at the same time or before it was booked.