

# Monetary Targets and Indicators in an Open Economy: Reflections on the Canadian Experience\*

## I. Introduction

The choice of the appropriate target and indicator of monetary policy has been the subject of considerable debate in recent years.<sup>1</sup> This discussion has tended to be theoretical in nature and confined to the case of a closed economy. This paper seeks to provide an additional perspective on this debate by examining the target-indicator issue in the context of the actual experience of an open economy. The specific objectives of the paper are twofold: first, to illustrate the complications which arise concerning the choice of monetary targets and indicators in the case of an open economy; and second, to illustrate — as economic theory would predict — that the Bank of Canada's choice of monetary targets and indicators is intimately related to its view of the transmission mechanism.

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<sup>1</sup> For example, see K. BRUNNER (ed.), *Targets and Indicators of Monetary Policy* (San Francisco: Chandler Publishing Co., 1969); THE FEDERAL RESERVE BANK OF BOSTON, *Controlling Monetary Aggregates* (Boston: Federal Reserve Bank of Boston, 1969); T. SAYING, "Monetary Policy Targets and Indicators", *Journal of Political Economy*, 75, (August 1967), pp. 446-456; K. BRUNNER and A. MELTZER, "The Meaning of Monetary Indicators" in G. Horowich (ed.), *Monetary Process and Policy* (Homewood, Illinois: Richard D. Irwin, 1967), pp. 187-217. J. E. TANNER, "Indicators of Monetary Policy: An Evaluation of Five", *Banca Nazionale del Lavoro Quarterly Review*, December, 1972, pp. 3-16; and V. ARGY, "An Evaluation of Financial Targets in Six Countries", *Banca Nazionale del Lavoro Quarterly Review*, March 1975, pp. 28-50.

TABLE I  
SELECTED FINANCIAL AND ECONOMIC STATISTICS

Year	Money Supply <sup>1</sup> (rate of change)	More Liquid <sup>2</sup> Asset Ratio	Short-term <sup>3</sup> Government	Interest Rates		Unemployment Rate	% Change Consumer Price Index	Official <sup>4</sup> Reserves	Canadian Dollar (\$C/\$U.S.)
				Long-term <sup>4</sup> Government	Canada- U.S.'s Differen- tial				
1957	1.9	35.3	3.84	3.78	0.48	4.7	3.2	1928	98.12
1958	12.8	40.0	4.52	4.61	0.31	7.1	2.7	2039	96.46
1959	-1.5	32.8	4.96	5.45	1.18	5.9	1.1	2082	95.12
1960	4.6	33.9	3.99	5.31	1.43	7.1	1.2	1992	98.41
1961	8.7	37.7	3.39	4.93	0.87	7.1	0.9	2292	104.27
1962	3.7	33.7	4.12	5.10	1.23	5.9	1.2	2561	107.60
1963	6.4	35.3	4.28	5.15	1.01	5.5	1.8	2613	107.93
1964	7.3	32.4	4.21	5.03	0.99	4.7	1.7	2890	107.46
1965	12.0	29.8	5.11	5.40	0.97	3.9	2.5	3037	107.58
1966	6.4	29.9	3.42	5.76	1.11	3.6	3.7	2702	108.31
1967	16.2	30.1	6.16	6.54	1.18	4.1	3.6	2717	108.02
1968	13.1	30.2	6.71	7.27	1.62	4.8	4.1	3046	107.31
1969	3.7	26.2	8.07	8.33	1.52	4.7	4.5	3106	107.44
1970	10.8	30.3	4.89	6.99	1.02	5.9	3.3	4679	101.74
1971	14.9	28.3	4.42	6.56	0.94	6.4	2.9	5570	99.92
1972	15.9	25.5	5.15	7.12	1.49	6.3	4.7	6050	99.97

<sup>1</sup> Currency and privately-held bank deposits.

<sup>2</sup> Ratio of reserves plus day loans plus treasury bills plus loans to brokers and investment dealers plus government securities to total major assets.

<sup>3</sup> Yield on 1-3 year Government of Canada bonds.

<sup>4</sup> Yield on 10 year and over Government of Canada bonds.

<sup>5</sup> Yield spread between long-term Government of Canada and U.S. Government bonds.

<sup>6</sup> Gold plus U.S. dollars plus other foreign currencies plus Reserve Position at IMF plus Special Drawing Rights, in millions of U.S. dollars. Canada's gold-based assets were revalued from U.S. \$35 to U.S. \$38 in the second quarter of 1972. Includes allocations of Special Drawing Rights to Canada at the first of each year as follows:

1970 U.S. \$124 million  
1971 U.S. \$118 million  
1972 U.S. \$117 million

Sources: *Bank of Canada Review*.

The paper begins with a brief discussion of monetary targets and indicators. The analysis then shifts to three important episodes in Canadian monetary policy: (1) the 1958-1960 period, in which Canada had a flexible exchange rate and a monetary target; (2) the 1966-1968 period, in which Canada had a fixed exchange rate and a credit conditions or interest rate target; and (3) the 1970-1972 period, in which Canada had an ostensibly flexible exchange rate and a credit conditions or interest rate target. To provide a background to the discussion, the history of several relevant economic and financial variables during the 1957-1972 period is summarized in Table 1.

## II. Monetary Targets and Indicators

A monetary indicator can be defined as "a variable or combination of variables that will best describe the effect that current monetary policy is having on economic activity".<sup>2</sup> A monetary target is an intermediate goal variable that the monetary authorities seek to control in the short run in order to affect their ultimate goal variables in the longer run. The need for monetary targets and indicators arises from uncertainty regarding the economic structure and the time lags that exist between a policy action and its impact on the ultimate goal variables. If the economic structure and response lags were known with certainty, the need for economic indicators and intermediate targets would disappear. In this environment, the outcome of every policy action upon the basic goal variables of employment, economic growth and price stability would be known, although debate might still exist as to the appropriate goals and policy mix. However, in a world in which the lags are long and in which both the economic structure and lags are uncertain, government policy cannot be directed efficiently to the ultimate goal variables. Further, government policy cannot be inferred from variations in the ultimate goal variables because one cannot distinguish between variations in goal variables arising from the policy action and variations arising endogenously from within the economic system.

In an attempt to overcome these problems, central bankers have adopted a variety of monetary variables as intermediate targets for

<sup>2</sup> T. SAVING, "Monetary Policy Targets and Indicators", *op. cit.*, p. 446.

and indicators of the thrust of monetary policy.<sup>3</sup> Ignoring subtle differences between different variables, these variables fall into two very broad classes: monetary aggregates (such as the monetary stock, monetary base, and neutralized monetary stock) and credit conditions (such as some market rate of interest, the full employment interest rate, credit availability and tone of the market). Monetary aggregates are supported by a variety of authors on the grounds that they are basically controllable by the monetary authorities, that monetary influences directly affect investment and consumption decisions and hence are an important link in the transmission mechanism, and that they minimize the possible maximum deviation between some "ideal" true indicator or target and the approximating indicator or target when unanticipated sources of instability in the economy originate from unpredictable shifts in the savings or investment functions. Credit conditions in general and interest rates in particular are supported by other authors on the grounds that variations in these variables provide the primary way in which monetary influences are transmitted to the real sector, that they are strongly affected if not controlled by monetary policy in the short run, and that they are the minimax target or indicator when the major sources of unanticipated instability in the economy originate from unpredictable shifts in the demand for money.<sup>4</sup>

The purpose of this paper is *not* to comment directly on the

<sup>3</sup> See, for example, ANNA SCHWARTZ, "Short-Term Targets of Three Foreign Central Banks", in K. BRUNNER (ed.), *Targets and Indicators of Monetary Policy*, *op. cit.*, pp. 27-64; G. HOROWICH, "A Framework for Monetary Policy", in K. BRUNNER (ed.), *op. cit.*, pp. 124-164; D. STARLEAF and J. STEPHENSON, "A Suggested Solution to the Monetary Indicator Problem: The Monetary Full Employment Interest Rate", *Journal of Finance*, XXIV, (September 1969), pp. 633-641; and P. HENDERSHOTT, *The Neutralized Money Stock* (Homewood, Illinois: Richard D. Irwin, 1968).

<sup>4</sup> Discussion of the pros and cons of different indicators can be found in T. SAVING, *op. cit.*, pp. 446-456; D. MEISELMAN, "The Role of Money in National Economic Policy: Discussion", and A. MELTZER, "The Role of Money in National Economic Policy: Discussion" in the Federal Reserve Bank of Boston, *Controlling Monetary Aggregates*, *op. cit.*, pp. 15-19 and 25-30, respectively; J. DUSENBERRY, "Tactics and Targets of Monetary Policy" in FEDERAL RESERVE BANK OF BOSTON, *op. cit.*, p. 87; J. TOBIN "Monetary Semantics" in K. BRUNNER (ed.), *Targets and Indicators of Monetary Policy*, *op. cit.*, p. 170. A discussion of the implications of different sources of unanticipated instability for the appropriate target or indicator can be found in K. BRUNNER and A. MELTZER, "The Meaning of Monetary Indicators", *op. cit.*, pp. 187-217, and the "Nature of the Policy Problem" in K. BRUNNER (ed.), *op. cit.*, pp. 1-26; W. POOLE, "Optimal Choice of Monetary Policy Instruments in a Simple Stochastic Macro Model", *Quarterly Journal of Economics*, LXXIV, (May 1970), pp. 197-216; G. HOROWICH, "A Framework for Monetary Policy" in K. BRUNNER (ed.), *op. cit.*, pp. 124-164.

relative desirability of these classes of targets and indicators. Rather, the purpose is to use the Canadian monetary experience to indicate the very substantial complications in the use of these variables introduced by balance of payments and exchange rate considerations, and to illustrate how the Bank of Canada's choice of monetary targets and indicators reflect its view of the transmission mechanism.

### III. The Canadian Monetary Experience

#### 1. *A Flexible Exchange Rate and a Monetary Target, 1958-1960*

During the 1958 to 1960 period, Canada had a freely floating exchange rate. Further, the Bank of Canada held a "monetarist" view of monetary policy, arguing that "the primary function of a central bank is to regulate the total quantity of money".<sup>5</sup> The Bank employed the money supply (narrowly defined) as both the target and indicator of monetary policy.<sup>6</sup>

The 1958 to 1960 monetary experience was dominated by a massive debt management operation known as the Conversion Loan of July 15, 1958 to September 15, 1958. Between these dates, the Bank of Canada refinanced 54 per cent of all outstanding direct and guaranteed Government of Canada securities and almost doubled the average maturity of this debt.<sup>7</sup> In order to facilitate the Conversion Loan, the Bank pursued a highly expansionary policy during the first three quarters of 1958, with the result that the money supply grew at an annual rate of 14 per cent. Although this expansionary monetary policy was clearly appropriate in 1958 in view of the high level of unemployment and the need to facilitate fiscal policy, the Bank itself felt that:

The degree of monetary expansion experienced... was substantially greater than would have been necessary or desirable for monetary and economic reasons alone... (but was)... justified and unavoidable in order that a strenuous and successful effort might be made to deal with serious problems affecting the financing of the Government's cash deficit and the condition of the public debt.<sup>8</sup>

<sup>5</sup> BANK OF CANADA, *Annual Report 1959*, p. 3.

<sup>6</sup> See BANK OF CANADA, *Annual Reports 1956-1960* for repeated references to the money supply target, and ANNA SCHWARTZ, "Short-Term Targets of Three Foreign Central Banks" in K. BRUNNER (ed.), *Targets and Indicators of Monetary Policy*, op. cit., pp. 27-66.

<sup>7</sup> ROYAL COMMISSION ON BANKING AND FINANCE *Report* (Ottawa: Queen's Printer, 1964), p. 454.

<sup>8</sup> BANK OF CANADA, *Annual Report 1958*, p. 4.

In view of its concern that the expansion of the money supply had been "excessive" during the first three quarters of the year, and in spite of an unemployment rate in excess of 7 per cent, the Bank removed its support from the bond market in the fall of 1958 and began a period of extreme monetary restraint. The rate of growth of the money supply was sharply reduced in the fourth quarter of 1958 and the money supply actually *declined* by 1.8 per cent in 1959.

This change in monetary policy was followed by a substantial increase in Canadian interest rates, and the long-term government bond yield rose from an average premium of 64 basis points in both 1957 and the first three quarters of 1958 to an 81 basis point premium over the yield on long-term U.S. Government bonds in the fourth quarter of 1958. This premium rose to an average of 107 basis points in 1959 and 117 basis points in 1960. The Canadian dollar consequently appreciated by 2.6 per cent between the third quarter of 1958 and the third quarter of 1959, and remained at this higher level until the second quarter of 1960.

The restrictive monetary policy pursued by the Bank of Canada in 1959 and most of 1960, combined with the extremely illiquid position of the Canadian public after the Conversion Loan, appears to have contributed significantly to the fact that the 1958 to 1960 economic expansion was the weakest in Canada in the postwar period and the only one which fell short of the corresponding U.S. recovery.<sup>10</sup> Although the Bank's policies during this period can be criticized on many counts,<sup>11</sup> the Bank's decision to pursue restrictive measures appears to be due in large part to its interpretation of its policies as excessively expansionary during the first three quarters of 1958. This interpretation, in turn, reflected the Bank's exclusive concern with the money supply as an indicator of the thrust of monetary policy. The evidence from the non-monetary indicators during 1958 did not suggest excessive ease. The interest rate on long-term Government securities, for example, rose steadily throughout the year (although the Canadian-U.S. long-term government yield

<sup>9</sup> *Ibid.*, p. 4.

<sup>10</sup> ROYAL COMMISSION ON BANKING AND FINANCE *Report*, op. cit., p. 412.

<sup>11</sup> See J. E. PESANDO and L. B. SMITH, "Monetary Policy in Canada" in K. Holbik (ed.), *Monetary Policy in Twelve Industrial Countries*, (Boston: Federal Reserve Bank of Boston, 1973), pp. 74-80.

spread was steady until the end of the year) in spite of the rapid expansion of the money supply.<sup>12</sup>

During this period, the flexibility inherent in a floating exchange rate system permitted the Bank to opt for a monetary target. This choice was consistent with the Bank's view of the transmission mechanism that it is the quantity of money controlled through open market operations that affects the volume of bank loans and economic activity.<sup>13</sup> However, by relying exclusively on a narrow definition of money as the *sole* indicator of policy during the Conversion Loan period, the Bank misinterpreted its policies as being *excessively* expansionary during the first three quarters of 1958. The Bank responded by aggressively pursuing a restrictive monetary policy, whose impact on the domestic employment situation was exacerbated by the appreciation of the Canadian dollar in response to the widening Canadian-U.S. interest differential. We must emphasize that we are not simply criticizing the Bank regarding its choice of objectives in the context of the presumed existence of a short-run tradeoff between unemployment and inflation. Rather, the Bank clearly misinterpreted the thrust of its earlier policies by focusing exclusively on a narrow definition of money, when the signals provided by alternate indicators — such as broader monetary aggregates or nominal interest rates — did not suggest excessive ease.

## 2. *A Fixed Exchange Rate and a Credit Conditions Target, 1966-1968*

Beginning in 1961, the Bank of Canada abandoned its "monetarist" approach to monetary policy and also its exclusive emphasis on the money supply as the target and indicator of policy. The Bank adopted a "credit conditions" view of the transmission mechanism, arguing that the impact of monetary policy was reflected in variations in the cost and availability of credit. In a consistent fashion, the Bank adopted nominal interest rates and other meas-

<sup>12</sup> The real, and not just the nominal, interest rate on long-term bonds was rising. See J. CARR and L. B. SMITH, "Money Supply, Interest Rates and the Yield Curve", *Journal of Money, Credit and Banking*, 4, (August 1972), p. 592.

Note also that the Bank might not have been misled if it had monitored a broader monetary aggregate which included the public's holding of more liquid Government securities. This result highlights an important difficulty with the choice of the money supply as a target of policy; that is, the appropriate definition of money.

<sup>13</sup> BANK OF CANADA, *Annual Report 1959*, pp. 4-6.

ures of "credit conditions" as the appropriate targets and indicators of policy.<sup>14</sup> The Bank argued that the "money supply... (should be changed) at different rates in different periods so that it makes a contribution to achieving credit conditions which are appropriate to changing economic circumstances".<sup>15</sup>

During the 1966-1968 period, the expansion of the money supply in Canada was very volatile and occasionally quite rapid. The rate of growth of the money supply was 6.4 per cent in 1966, 16.2 per cent in 1967, 13.1 per cent in 1968 (but 1.8 per cent in the first quarter and 18.7 per cent during the last three quarters, at annual rates), and 3.7 per cent in 1969.<sup>16</sup> This erratic behaviour can, in part, be explained by the dictates of a fixed exchange rate coupled with an effective ceiling on official international reserves. Foreign exchange considerations, in effect, forced the Bank to adopt nominal interest rates as an intermediate policy target, leaving the money supply to be determined residually. However, as the following episode shows, the choice of a monetary target and indicator is relatively unimportant when policy is effectively dictated by foreign exchange considerations.

Theoretical considerations suggest that discretionary monetary policy will be severely constrained in a small, open economy with a fixed exchange rate. If, in addition, the permissible fluctuation in official reserves is very limited, monetary policy will be virtually dictated by foreign exchange considerations. During the June 1962 to June 1970 period, the exchange rate in Canada was fixed. Furthermore, during most of this period Canada operated under an effective ceiling on its permitted foreign exchange reserves. In order to gain exemption from the United States Interest Equalization Tax, Canada agreed in 1963 to prevent its official foreign reserve holdings from rising above their then current level of \$2,700 million (U.S.).<sup>17</sup> In December 1965, in order to obtain a partial exemption from a new set of United States balance of payments guidelines, Canada agreed to lower the maximum level of official reserves to \$2,600

<sup>14</sup> See BANK OF CANADA, *Annual Report*, after 1961 for repeated references to the credit conditions target, and ANNA SCHWARTZ *op. cit.*, pp. 29-33.

<sup>15</sup> BANK OF CANADA, *Annual Report 1961*, p. 7.

<sup>16</sup> A purely monetarist and primarily domestic analysis of these fluctuations can be found in T. J. COURCHENE "Recent Canadian Monetary Policy", *Journal of Money, Credit and Banking*, 3, (February 1971), pp. 35-56.

<sup>17</sup> BANK OF CANADA, *Annual Report 1963*, p. 5.

million (U.S.) and to achieve this reduction by the end of 1966.<sup>18</sup> This ceiling on Canada's foreign exchange holdings remained intact until December 1968 when the United States agreed to its removal. During the 1966 to 1968 period, the Bank of Canada was thus severely constrained in its operations by the combination of a fixed exchange rate and relatively fixed official reserve target. Due to the fact that Canada's foreign exchange reserves were at or very close to the reserve ceiling, the Bank could not pursue policies that would lead to an accumulation of reserves. On the other hand, because Canada's reserve holdings were not unusually large by Canadian standards or in relation to Canada's trade volume and international capital flows, the Bank could not pursue policies which would generate a significant loss of reserves. Thus nominal interest rates in Canada were constrained to move in harmony with those in the United States in order to prevent excessive fluctuations in international capital flows and corresponding fluctuations in Canada's foreign exchange reserves.<sup>19 20</sup>

The constraining impact of balance of payments considerations on the Bank's policies is quite evident in the 1966 to 1968 period. In mid-1966, in response to preliminary evidence that the rate of growth of aggregate demand was moderating, the Bank of Canada announced an easing in monetary policies. Despite this announcement, the rate of growth of the money supply declined from 12.0 per cent in 1965 to 6.4 per cent in 1966, and interest rates rose slightly, although the Canadian-U.S. long-term government yield spread remained relatively stable. During this period Canada's

<sup>18</sup> Since this new ceiling was inclusive of Canada's net creditor position at the IMF while the old ceiling was not, the reduction in the reserve ceiling was considerable. BANK OF CANADA, *Annual Report 1966*, p. 59.

<sup>19</sup> To some extent, the Bank of Canada had a little room to manoeuvre since it could engage in forward market transactions, selling foreign exchange reserves spot and repurchasing forward, to temporarily adhere to the official reserve ceiling. However, such actions would definitely have violated the spirit of the agreement and could be considered as only a temporary expedient.

<sup>20</sup> In point of fact, capital flows between Canada and the United States appear to respond to nominal yield differentials. Economic theory predicts that to the extent that international differences in nominal interest rates reflect differences *solely* in anticipated rates of inflation, and to the extent that international transactors form their expectations of the equilibrium value of exchange rates according to the purchasing power parity doctrine, expected exchange rate adjustments would offset the incentives to international capital flows provided by nominal yield spreads. In the Canadian-United States context, however, the expected rates of inflation are likely to be so similar in the two countries that nominal yield spreads will reflect, in fact, *ex ante* real yield spreads.

exchange reserves were near their ceiling, but the Bank of Canada nevertheless felt concerned with a small decline in official reserves and sold Government bonds in order to "ensure that the differential of bond yields between Canada and the United States was adequate" to attract the inflow of capital necessary to finance the current account deficit.<sup>21</sup> Thus, the potential loss of reserves appears to have inhibited the Bank of Canada's pursuit of an independent monetary policy and restricted its desired monetary expansion.

The Bank's desire to pursue an expansionary policy continued until mid-1967, at which time the Bank returned to an announced policy of monetary restraint. However, in spite of this supposed policy of restraint, the money supply grew at an average annual rate of 15.9 per cent during the second half of 1967! This rapid expansion of the money supply in a period of announced monetary restraint reflects a combination of factors,<sup>22</sup> the most important of which appears to be the constraint imposed by the ceiling on Canada's holdings of foreign reserves. In the second half of 1966, Canada's official reserves were bumping against the reserve ceiling and the Governor of the Bank of Canada felt that the alternative to a rapid expansion of the money supply was to permit a more rapid escalation of interest rates at a time when a strong need existed to "avoid excessive capital inflow".<sup>23</sup>

In spite of the rapid expansion in the money supply, domestic interest rates rose substantially in the latter portion of 1967, paralleling developments in the United States. However, in January 1968, in response to a new set of balance of payments guidelines introduced by the United States, the Canadian dollar came under heavy selling pressure. The result was a sharp decline in Canadian foreign exchange holdings and an immediate attempt by the Bank of Canada to stem the outflow. In the first quarter of 1968, the money supply was virtually frozen and domestic interest rates increased, leading to a 34 basis points increase in the Canadian-U.S. long-term government yield differential over the previous quarter. By early summer

<sup>21</sup> BANK OF CANADA, *Annual Report 1966*, p. 43.

<sup>22</sup> Other factors included financing the needs of the Government and implementation of the 1967 revisions in the Bank Act. See D.W. SLATER "The 1967 Revision of the Canadian Banking Acts: An Economist's View", and R. M. MACINTOSH "The 1967 Revisions in the Canadian Banking Acts: A Banker's View", *Canadian Journal of Economics*, 1, (February 1968), pp. 79-91 and 91-96 respectively.

<sup>23</sup> BANK OF CANADA, *Annual Report 1967*, p. 10.

the Bank had succeeded in its defense of the Canadian dollar and Canada's exchange holdings were once again pressing against the ceiling. At this point the foreign exchange constraint was particularly binding, since the ceiling restricted upward movement in official reserves and even slight declines from the ceiling caused the Bank to worry about insufficient foreign exchange holdings.

By autumn, the Bank desired a policy of monetary restraint for domestic stabilization. However, pursuit of this policy was severely impeded by the official reserve ceiling. As Canada's official reserves threatened to exceed their ceiling level, the Bank expressed concern that the "flexibility of Canadian monetary policy was in danger of being severely limited" by the reserve ceiling,<sup>24</sup> and the money supply grew at an incredible 18.7 per cent annual rate during the last three quarters of 1968. The extent to which the reserve ceiling frustrated Canadian monetary policy can be seen by the Bank's actions after the ceiling was removed in December 1968. After growing by 16.2 per cent and 13.1 per cent in 1967 and 1968, respectively, the money supply grew by only 3.7 per cent in 1969, and actually declined in the last three quarters of the year.

During most of this period, the Bank relied extensively on both nominal interest rates and the more liquid asset ratio of the chartered banks as indicators of policy.<sup>25</sup> The choice of the appropriate indicator of policy, however, is not an especially interesting issue in a situation in which the monetary authorities are forced to opt for an interest rate target. Had the Bank of Canada, for example, chosen the money supply as an indicator of policy during this period, the Bank still would have been forced to pursue policies designed to keep domestic interest rates at the levels dictated by foreign exchange considerations. The only difference that a money supply indicator *might* have made would have been a more rapid decision by the Bank to abandon its commitment to peg the Canadian dollar

<sup>24</sup> BANK OF CANADA, *Annual Report 1968*, p. 14.

<sup>25</sup> The more liquid asset (MLA) ratio is defined in the footnotes to Table 1. As an indicator or target of policy the MLA ratio has severe limitations which parallel those of the "free reserve" measure in the United States. In particular, the MLA ratio is endogenous to the banking system since the banks may alter their desired holding of more liquid assets, and there is no reason to expect the desired MLA ratio to be constant over time. Nevertheless, the Bank of Canada attached special importance to this ratio believing it "is probably the best single indicator of monetary policy and conditions". J.R. BEATTIE, Deputy Governor of the Bank of Canada in *Inflation in Canada - Dimensions and Policies* (Montreal: National Industrial Conference Board, Inc. 1970), p. 29.

at a value which emerging economic forces indicated was unrealistically low.

In summary, the combination of a fixed exchange rate and an effective ceiling on Canada's official international reserves virtually emasculated Canadian monetary policy during the 1966-1968 period. They effectively forced the Bank of Canada to adopt nominal interest rates as an intermediate policy target, although the Bank's view of the transmission mechanism would probably have resulted in a credit conditions target in any event.

Finally, this episode also illustrates that the choice of an appropriate indicator of policy is relatively unimportant when monetary policy is essentially dictated by foreign exchange considerations.

### 3. *A Managed Exchange Rate and a Credit Conditions Target, 1970-1972*

The Canadian dollar was set free to float on the foreign exchange market on May 31, 1970, and appreciated by more than 5 per cent during the remainder of the year. In response to the sharp rise in unemployment (which had reached 6 per cent by the second quarter of 1970) and the expectation that lessening demand pressures would cause inflation to subside, the Bank embarked in the first quarter of 1970 upon a policy of monetary ease which was continued throughout 1971 and 1972.

The most distinctive feature of monetary policy in this period [1970 (June) - 1972] is the singularly rapid expansion of the money supply, which grew at an average annual rate in excess of 15 per cent. During this period, the Bank of Canada persisted with its credit conditions approach to central banking, and continued to feel constrained by foreign exchange considerations. Because of the high level of unemployment existing in Canada, the Bank felt required to prevent any further appreciation of the Canadian dollar, and the extraordinary rapid expansion of the money supply in this period is a direct reflection of the Bank's attempt to prevent interest rate movements which could give rise to a further excessive inflow of capital. The preoccupation of monetary policy with the exchange rate is further reflected in the Bank of Canada's direct intervention in the foreign exchange market. Evidence of this intervention is the remarkable increase of \$773 million or 17 per cent in Canada's official international reserves

(exclusive of the additional \$118 million (U.S.) of Special Drawing Rights and the impact of the devaluation of the U.S. dollar on Canada's gold base reserves) in 1971 under a nominally floating exchange rate!

The erratic behaviour of the money supply in the 1966-1968 period, as noted previously, can be explained in large part by the dictates of the fixed exchange rate. With a flexible exchange rate, however, the rapid expansion of the money supply in the 1970 (June) - 1972 period must be interpreted as an uncompromised act of discretionary monetary policy. In view of the relatively easy credit market conditions as viewed by the Bank (i.e. as indicated by the more liquid asset ratio), the only explanation for the very rapid expansion of the money supply in the 1970-72 period seems to be the Bank's choice of *short-term* objectives. In particular, the Bank opted for less unemployment in the context of the traditional short-run tradeoff between unemployment and inflation. This choice, in turn, caused the Bank to seek to prevent any further appreciation of the Canadian dollar. The Bank of Canada was fully aware of the fact that its monetary expansion was inconsistent with the goal of domestic price stability, but the Bank felt that a lower rate of expansion "might involve the risk of encouraging unduly high interest rates, excessive capital inflows and upward pressure on the exchange rate".<sup>26</sup> In effect, the Bank's preoccupation with the exchange rate caused it to forfeit the ability to pursue a discretionary monetary policy and forced the Bank to opt for an interest rate target.

Whether or not the Bank's policy objectives were correct, this episode clearly indicates the potential difficulties an open economy creates for the selection of monetary targets, even with a flexible exchange rate system. If, for example, the Bank of Canada were to adopt a money supply target and if interest rates were to fall in the United States at a time when the Bank placed top priority on reducing unemployment, the Bank would have to either increase the money supply and thus presumably depart from its money supply target or accept the consequences of an appreciation of the Canadian dollar.

<sup>26</sup> BANK OF CANADA, *Annual Report 1970*, p. 9. For further evidence, see BANK OF CANADA, *Annual Report 1971*, p. 8.

#### IV. Conclusions

The analysis of these three episodes in Canadian monetary policy serves to illustrate two points. First, the Bank of Canada — as economic theory would predict — is influenced in its choice of the appropriate target(s) and indicator(s) of policy by its view of the transmission mechanism. Second, balance of payments and exchange rate considerations severely complicate the conduct of monetary policy in an open economy. These considerations not only inhibit the freedom of action of the monetary authorities, but also force them to be concerned with intermediate targets which might not be of their own choosing. If the exchange rate is fixed and the permissible fluctuation in international reserves is limited, for example, the central bank is forced to opt for interest rates as an intermediate target. Further, the indicator problem ceases to be an important policy issue under these circumstances, since the future course of monetary policy is effectively dictated by foreign exchange considerations.

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