

To Fix or to Float? A Review of Issues Related to Canada's Exchange Rate

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I. Introduction

Canada has operated under a flexible exchange rate for all but eight (1962-70) of the last 44 years. In recent years, however, debate has re-surfaced about Canada's floating exchange rate regime. In particular, some have argued that Canada should peg its currency to the U.S. dollar to benefit fully from the North-American Free Trade Agreement (NAFTA).¹ Proponents of this view argue that large swings in the Canada-U.S. dollar exchange rate as well as short-run exchange rate volatility are detrimental to trade and the efficient allocation of investment. In contrast, defenders of the status quo have stressed that the flexible exchange rate has helped the Canadian economy to adjust to important shocks and can continue to do so.² Moreover, pegging the currency would severely curtail the autonomy of the Canadian monetary authorities.

This paper presents the case that has been made for maintaining the current flexible exchange rate regime, drawing in large part on recent studies at the Bank of Canada. The case for flexible exchange rates in our view rests on a simple argument.³ When compared to fixed exchange rates, the benefits of greater monetary policy autonomy and macroeconomic stabilization made possible by flexible rates outweigh the possible disadvantages of higher transactions costs and greater uncertainty associated with exchange rate volatility.

Many of the costs associated with a flexible exchange rate mechanism are microeconomic in nature. These include: higher transactions costs, greater uncertainty and the possible reduction in trade and international investment flows. There is reason to believe, however, that the significance of these costs is often exaggerated. For instance, there is little evidence to suggest that pegged exchange rate systems are subject to significantly lower transactions costs than flexible rates systems. Moreover, the enhanced value of money as a unit of account and a medium of exchange under a fixed system is likely to be maximized only when countries share a common currency. It could be argued that short-run exchange rate volatility reduces trade and, in turn, economic welfare. However, available research indicates that the effect of exchange rate volatility on trade is ambiguous in theory and probably very small in practice. In addition, the claim that a temporary exchange rate appreciation could have a permanent adverse effect on a country's trade -- the trade hysteresis hypothesis -- has failed to be substantiated.

The macroeconomic arguments supporting a flexible exchange rate in Canada's case are more substantial. The optimum currency area literature indicates that flexible exchange rate arrangements are more suitable when countries tend to experience different economic shocks or have different monetary policy objectives.⁴ Our research, which has tried to test some of the optimum currency area concepts, has shown that the shocks affecting the Canadian and U.S. economies are often different in nature. Furthermore, while both the U.S. Federal Reserve and the Bank of Canada are currently dedicated to maintaining low inflation in their respective countries, the Bank of Canada has recently made more progress in this regard and has been more explicit about its longer term objectives.

The rest of the paper discusses some of these arguments, highlighting the results of recent

1. Exponents of this view include Mundell (1991), Courchene(1990), Fortin (1990), Harris (1992) and Grady (1993).

2. See, for example, Laidler and Robson (1990), Purvis (1993) and White (1994).

3. This section draws on White (1994).

4. Fenton and Murray (1993) provide an updated taxonomy of the benefits and costs of a common currency as well as a checklist of conditions relevant to the success of a currency area.

research at the Bank of Canada. Trade issues are discussed in Section II. The claim that Canada and the United States are likely to experience different or “asymmetric” shocks is examined in Section III. The case for flexible exchange rates also presumes that the exchange rate plays an important role in facilitating adjustment to shocks and consequently that exchange rate movements mainly reflect economic fundamentals. Evidence for this is presented in Section IV. The implications of flexible exchange rates for the conduct of monetary policy are discussed in Section V. Conclusions follow.

II. Trade

At first glance, one of the most compelling arguments for fixed exchange rates is that economic integration in North America, enhanced by NAFTA, would be facilitated by such an arrangement for a number of reasons. First, fixed exchange rates could reduce transactions costs. Second, flexible exchange rates can lead to greater exchange rate volatility and thereby discourage international trade. Third, flexible exchange rates may facilitate the occurrence of important currency misalignments, leading to trade hysteresis.

A. Transactions costs

Some have argued that a currency peg would reduce transaction costs in international trade in an integrated North American market. For instance, a peg might reduce the cost of hedging against currency movements. However, since there is always a possibility of re-evaluating the peg, there will always be a margin of risk to cover. Short of a currency union with the United States, it would seem that moving to a fixed exchange rate arrangement would lead, at best, to a marginal reduction in transaction costs. Moreover, the direct costs of operating in more than one currency are likely to be a rather small component of the cost of transacting business across national boundaries (e.g. consider the costs of accommodating different regulations, labour and environmental codes, tax systems, legal obligations, etc.).

B. Exchange rate volatility

Proponents of fixed exchange rates also argue that flexible exchange rates lead to excessive short-term exchange rate volatility, hampering the process of continental integration and limiting exploitable trade opportunities. They believe that exchange rate stability is required to reap the benefits of free trade agreements with the United States and Mexico.

The effect of greater exchange rate volatility on trade is ambiguous in theory, however, because it creates profit making opportunities as well as increasing the uncertainty of profits of export sales in foreign currency.⁵ Strong conclusions about the negative impact of exchange rate volatility on trade can only be obtained under rather specific assumptions about firms’ preferences and the nature of their activities. The effect of volatility depends on the degree of risk aversion and risk exposure. Even if a firm is risk averse, it does not necessarily follow that an increase in risk leads to a reduction of the risky activity. For instance, highly risk averse firms worry about the worst possible outcome. When risk increases, they may export more to avoid a drastic decline in their revenues.

The probability of making large profits also increases when exchange rates are more variable. Providing the firm has the flexibility to respond to market conditions (with inventories, high productive capacity, and/or low production adjustment costs), the

5. This section draws on Côté (1994).

opportunity to increase (or reduce in appropriate circumstances) foreign export sales may be viewed as a valuable option to the firm.

While the notion that exchange rate volatility is detrimental to trade is intuitively appealing since it increases business risks and disturbs planning, the effect is not obvious once firms are allowed to diversify across markets, source inputs from both home and abroad, adopt flexible invoicing arrangements, or have access to hedging instruments. For the modern firm, exchange rate variability may represent a highly diversifiable risk. In addition, international operations may provide an important means of diluting risks associated with domestic transactions.

It is not surprising, therefore, that surveys of the empirical literature generally conclude that short-run exchange rate volatility has a rather limited effect and, in some studies, even a positive effect on trade. Early surveys indicated either the absence of a link between measured exchange rate variability and the level of trade or at best mixed results.⁶ Côté (1994), reviewing post-1988 research, concludes that while the majority of the studies appear to favour the conventional assumption that exchange rate volatility depresses the level of trade, the magnitude of the effect is rather small. Two studies of particular note examined the impact of nominal exchange rate volatility on Canada-U.S. trade flows in five key sectors: food products, industrial supplies, capital goods, automotive vehicles, and consumer goods.⁷ The earlier of these two studies suggested that volatility had a negative impact on U.S. exports to Canada in two sectors, industrial supplies and autos. The authors had some doubts about their results, however, as the estimated coefficients were more consistent with import demand than export supply functions. In the more recent study, therefore, U.S. import equations were estimated for the same sectors. The study failed to detect any economically significant negative impact of exchange risk on U.S. imports from Canada.

C. Trade hysteresis

Concerns have also been expressed by proponents of fixed exchange rates that sizable exchange rate misalignments can lead to trade hysteresis. The idea of hysteresis is that history matters: “where you are going depends upon how you get there, and once you get there, going back is not simply reversing what you did to arrive”.⁸ The impetus for this literature in the trade area was the persistence of U.S. trade deficits in the mid-1980s after the U.S. real exchange rate had depreciated to levels that should have been more consistent with the near-balance trade account observed at the beginning of the decade.

Justifications for hysteresis phenomena in trade include sunk costs involved in entering or leaving an export market and the importance of securing market share for long-term sales prospects under imperfect competition (building a niche). The sunk cost argument presumes that entering an export market involves large outlays to set up distribution and marketing networks and/or additional plant capacity.⁹ In the presence of uncertainty, product prices must be well above average variable costs for firms to enter new markets and fall below average variable costs for firms to exit markets which they currently service. The width of the entry/exit band will depend on the variability of the exchange rate, the degree to which any exchange rate shock is expected to persist and the ratio of operating

6. See Farrell et al. (1993), International Monetary Fund (1984), and Bélanger and Guitierrez (1990).

7. Bélanger et al. (1988) and (1992).

8. Harris (1993a), page 364. Harris provides a thorough review of various trade hysteresis concepts.

9. See Baldwin and Krugman (1989), for example.

costs to sunk costs.

Early empirical studies on trade hysteresis were often inconclusive, however. And as the U.S. trade balance subsequently improved by the end of the 1980s -- and traditional trade models could account for these developments-- little support could be found for the trade hysteresis hypothesis (Krugman 1990).

Amano, Beaulieu and Schembri (1993) focused on the Canadian experience in the late 1980s -- when Canada experienced a large real exchange rate appreciation -- and reached a similar conclusion. The authors did not provide a direct test of hysteresis. Rather, they provided indirect evidence by showing that export-oriented manufacturing industries in Canada had performed as well or better than other more sheltered industries over the period. The presumption was that export-oriented industries would be more sensitive to an exchange rate appreciation than sheltered industries, especially if trade hysteresis were to occur because firms engaged in the production of tradable goods might exit permanently from these markets as a result of an exchange rate appreciation.

The study examined the relative performance of 74 manufacturing industries, grouped into five classes according to their degree of export orientation. Production, investment, employment and profit margins over the 1987-91 period were compared for the different classes. The analysis indicated that, with the possible exception of profit margins, export-oriented manufacturing industries were not especially adversely affected by the strong Canadian dollar over the period.¹⁰ The authors also report that related research found similar results for import-competing industries.

In addition, the study failed to find evidence of structural instability in aggregate trade equations for manufactures and non-oil resource sectors. Trade equations were estimated from 1973 up to 1986 when the Canadian dollar reached its post Bretton-Woods low against the U.S. dollar and dynamic simulations of the estimated equations were run over the 1973-91 period. It was assumed that overprediction in the post-sample period would be indicative of trade hysteresis. There was no evidence of overprediction for manufactured exports though commodity exports did not perform as well as expected. A number of statistical tests also failed to detect the presence of structural shifts in the estimated trade equations.

The conclusions of this study were tentative, however, since the analysis only examined the consequences of the appreciation of the Canadian dollar after 1986. One needs a full cycle of currency appreciation and depreciation to evaluate the potential for trade hysteresis. The depreciation of the Canadian dollar over the last three years, of about 20 per cent in real effective terms, provides us with the opportunity to re-examine this question in the near future.

III. Shocks

The ability of flexible exchange rates to absorb domestic or foreign shocks is perhaps their principal advantage when compared to fixed exchange rates. A flexible exchange rate can cushion a country from foreign inflation shocks. In addition, a flexible exchange rate may facilitate real exchange rate adjustments that are necessitated by the occurrence of real

10. Although the data seem to indicate that exporters outperformed other manufacturing industries over the 1986-91 period, the evidence does not imply that the exchange rate appreciation had not hurt exporters in an absolute sense.

economic shocks. A fixed exchange rate would shift the adjustment to domestic prices and wages which typically exhibit more inertia. For example, should a country experience an improvement in its terms of trade due to increased foreign demand for its products, or a surge in capital flows in response to a change in investor sentiment, the easing in monetary policy needed to maintain the peg would result in higher domestic inflation. By the same token, a deterioration in the terms of trade or an autonomous outflow of capital would require a tightening of monetary policy, leading to disinflation. Such domestic adjustments may be far more painful than allowing the exchange rate to move.

A flexible exchange rate allows greater latitude to conduct an independent monetary policy. It permits national monetary authorities to set their own objectives in terms of providing a nominal anchor for their economies. Under fixed exchange rates, domestic inflation would reflect, in large part, the rate of inflation in the country (or countries) to which the currency was pegged.

The value for a country of having this policy autonomy will also depend on the nature of the economic shocks it faces and the ease of response to these shocks. Shocks must differ sufficiently across countries to justify flexible exchange rates. If two countries experience similar disturbances, little real exchange rate adjustment may be required. This assumes, however, that the national authorities have a compatible interpretation of events and similar policy goals. If the latter differ across countries, then flexible exchange rates would still be of value for the degree of monetary policy autonomy that they provide.¹¹

The United States undoubtedly exerts a large influence on Canadian economic activity. Using a small vector autoregressive (VAR) model of Canada and the United States over the 1960-84 period, Murray and Kuszack (1987) find that over 50 per cent of the forecast variance in Canadian output, prices, interest rates, and money can be attributed to innovations in U.S. variables. In their view, the coincident movement of Canadian and U.S. macroeconomic variables may owe as much to the shared policy objectives of U.S. and Canadian monetary authorities as it does to the strong structural relationships that bind the two economies. They note that in the past Canadian and U.S. policymakers have typically interpreted economic events in a similar fashion and often held similar views.

Despite the ties that bind the two economies, a fair amount of evidence suggests that Canada and the United States are subject to distinct shocks. The common methodology in these studies is based on the approach that Blanchard and Quah (1989) introduced to identify supply and demand shocks in the context of small VAR models with long-run restrictions. Their method has frequently been applied in bivariate models of output growth and inflation. Typically, two key restrictions are used to identify the structural supply and demand shocks from the reduced-form errors of the bivariate VAR system. First, the two structural shocks are assumed to be mutually uncorrelated. Second, transitory shocks (i.e. shocks that have no permanent effect on the level of output) are interpreted as demand shocks, while other shocks are treated as supply shocks.

Applying this approach, Bayoumi and Eichengreen (1993a) looked at the linkages between the economic regions in North America. They divided the United States into eight regions, while Canada was split in two (Eastern and Western Canada), and Mexico was considered

11. In addition, monetary policy must be able to affect output, which implies nominal rigidities that prevent prices and wages from adjusting rapidly to clear markets. Note, however, that if wages and prices are perfectly rigid, a flexible exchange rate would be ineffective in procuring the required relative price adjustments. By the same token, if domestic prices and wages were completely flexible, a flexible exchange rate would be redundant.

as a single region.¹² They found no significant correlation between supply shocks in the two halves of Canada. Supply shocks to Western Canada, however, were significantly and positively correlated with those affecting the U.S. North West and South West regions -- reflecting a common dependence on natural resources. In a recent Bank of Canada staff study, Lalonde and St-Amant (1993) used a slightly different methodology, allowing for the identification of purely monetary shocks. They examined the degree of symmetry of shocks for nine U.S. regions as well as Mexico and Canada (which were not split into sub-regions). They found that both Canada and Mexico were subject to supply and non-monetary demand shocks that were asymmetric from those affecting the U.S. regions.

While the results of Bayoumi and Eichengreen might suggest that exchange flexibility would be more useful along an East/West than North/South axis, national borders are not about to be redefined on this basis. A more interesting question is whether Canadian regions have more in common with each other than with United States taken as a whole. Using an approach similar to Lalonde and St-Amant, DeSerres and Lalonde (1994) address this issue for six Canadian regions.¹³ They find a relatively limited role for U.S. aggregate shocks on individual Canadian regions compared to common domestic shocks and region-specific shocks. In particular, region-specific supply shocks dominate in the Western provinces, reflecting in part the importance of natural resources in their economies. In addition, for non-monetary demand shocks, the regional component dominates in the three largest provinces (Ontario, Quebec, and British Columbia), indicative perhaps of the relative importance of provincial fiscal policies.

Mundell (1991) has argued that Canada has little need for exchange rate flexibility since Canada's imports and exports are highly diversified and therefore its terms of trade should display little volatility. Roger (1991) critically examines the evidence for this claim. While he finds that the volatility of Canada's terms of trade has been close to the median of that for 12 industrialized OECD economies, he shows that the vast majority of countries have terms of trade that are positively correlated with those of their major trading partners while Canada's are negatively correlated. This means that Canada's terms of trade *relative* to those of its major trading partners are among the most volatile, suggesting the need for exchange rate flexibility.

On the whole, the studies reviewed above tend to indicate that the shocks hitting the Canadian and U.S. economies are often different in nature. While the two countries are closely linked through trade and sizable capital flows, significant differences in the industrial structure and specializations in the two countries make the added flexibility and insulation provided by a floating exchange rate attractive.

IV. Exchange Rate Fundamentals and Speculative Bubbles

It is generally recognized that all the major theories of exchange rate determination have failed to pass the test of empirical validation beyond a few years of their conception.¹⁴ This

12. In another study, focusing on country aggregates, Bayoumi and Eichengreen (1993b) found that Canadian supply shocks were significantly negatively correlated with U.S. supply shocks over the 1969-1989 period, suggesting important asymmetric shocks. The correlation (-0.47 based on annual data) was significantly reduced (to -0.12), however, when the sample was extended to include the 1960s.

13. Atlantic Canada, Quebec, Ontario, the Prairies, Alberta, and British Columbia. The United States are treated as a single region in this exercise.

14. See MacDonald and Taylor (1992) or Meese (1990) for surveys of the state of empirical exchange rate models.

point was made most strikingly by Meese and Rogoff (1983), who showed that none of the mainstream exchange rate models at the time could forecast better than a random walk out of sample.¹⁵ Since this was true even when using *ex post* information on economic fundamentals, these results could not be attributed to uncertainty about the future values of the determining variables. Formal models have been similarly disappointing in offering historical explanations of exchange rate movements, which have typically been much more volatile than theory would imply. The result has been a lack of consensus over which variables determine exchange rates and considerable professional scepticism about our understanding of exchange rate determination. Proponents of fixed exchange rates have therefore argued that it would be best to dampen exchange rate movements because it has been difficult to link them to economic fundamentals.

Recent research at the Bank of Canada has tried to address the failure of mainstream exchange rate models on two distinct fronts. First, it has attempted to look for economic fundamentals that could both explain historical movements in the Canada-U.S. exchange rate and forecast its future movements. Second, it has looked for evidence of non-fundamental sources of exchange rate movements.

A. Exchange rate fundamentals

Canada is a major exporter of energy and other primary or semi-transformed commodities whose prices are relatively volatile. In fact, commodity price fluctuations have had a major impact on Canada's terms of trade in the past. Exogenous shifts in the terms of trade due to commodity price shocks might be expected to alter the long-run real exchange rate.¹⁶

These effects are encapsulated in an equation for the Canada-U.S. real exchange rate reported in recent papers by Amano and van Norden (1993, 1994). Based on monthly data over the 1973-92 period, the authors report evidence of a long-run cointegrating relationship between the Canada-U.S. real exchange rate and two specific terms of trade components: the price of exported energy and the price of exported non-energy commodities, each divided by the price of imported manufactured goods. This split in the terms of trade was found to be important as no cointegrating relationship was evident between the aggregate terms of trade and the real exchange rate.

Somewhat surprisingly, the two terms of trade were found to have opposite effects on the real exchange rate. While an increase in non-energy real commodity prices results in a real exchange rate appreciation as expected (with a long-run elasticity of 0.8), the estimation results indicate that higher energy commodity prices would lead to a real depreciation of the Canadian dollar (with a long-run elasticity of -0.2).

The conventional wisdom is that an improvement in the terms of trade leads to a real exchange rate appreciation. For a price-taking commodity exporter such as Canada, an increase in world commodity prices would lead to an improvement in the current account, higher domestic income, and higher wages as wage rates are bid up to induce labour to shift to the resource sector. This would create excess demand pressures in the market for non-resource goods as supply falls (with labour shifting to the resource sector) and an increase in demand in response to higher domestic income and wealth. This requires an increase in the price of non-resource goods relative to foreign prices, or a real exchange rate

15. Backus (1984) presented related results for the Canada-U.S. exchange rate.

16. There is direct evidence on the influence of commodity prices on the Australian dollar; see Blundell-Wignall and Gregory (1990) or Gruen and Wilkinson (1991).

appreciation, to restore internal balance.¹⁷ The real appreciation would also help to restore external balance. The exchange rate appreciation, in conjunction with income and wealth effects, would lead to an increase in imports. Moreover, export sales would likely decline in non-resource tradable sectors of the economy. The real appreciation would also facilitate the reallocation of capital and labour towards the resource sector away from sectors, such as manufacturing, that are exposed to international trade.

Several reasons might explain why energy price shocks have a negative effect on the Canadian dollar. For one thing, Canadian industries are relatively energy intensive. Widespread negative effects of energy price shocks for manufactures would tend to offset to a large extent the gains enjoyed by energy producers.¹⁸ In addition, higher oil prices have important adverse effects on the U.S. economy and, consequently, on Canadian exports. These adverse effects on Canadian non-energy exports could more than offset the gains from net Canadian sales of energy products to the United States.¹⁹

In addition to the two terms of trade components, the equation also includes a measure of Canada-U.S. interest rate differentials in recognition of the importance of monetary factors. This term represents the difference between Canada and the United States in nominal short/long interest rate differentials. The latter are an approximation of the yield curve and can be indicative of the stance of monetary policies and their perceived credibility. While central banks have influence on short rates, movements in long rates will reflect in large part market inflation expectations in the long run. Based on the finding that the difference in the short/long differentials is stationary, this variable has only a transitory effect on the real exchange rate. An increase in short interest rates relative to long rates in Canada leads, as expected, to a real appreciation of the Canadian dollar.

Given its parsimonious structure, the equation is better at capturing long-term trends than explaining short-term volatility. The equation can explain 12% of the month-to-month variation of the Canada-U.S. real exchange rate. Dynamic simulations of the equation with different starting points and horizons reveal, however, that it can explain an increasing degree of the variance of the changes in the real exchange rate as longer horizons are examined. For instance, the equation can explain 50% of the variance over 12-month horizons and about 90% over 5-year horizons. On the basis of systematic and rigorous testing, the authors conclude that the exchange rate equation has stable coefficients. It also passes the Meese-Rogoff test in that it generally forecasts better than a random walk out of sample.

B. Speculative bubbles

The failure of modern exchange rate models has strengthened the case of fixed exchange rate proponents. Some have argued that this failure and the apparent excessive volatility of exchange rates may be due to speculative bubbles, chartists, or “noise traders” that drive exchange rates far from their fundamental values.²⁰ Fixing exchange rates could therefore reduce or prevent unwarranted exchange rate movements. Even if fundamentals are changing through time so that some exchange rate movement is desirable, fixed rates

17. For a small open economy, the prices of tradable goods would be largely determined in world markets. Thus, the real appreciation would come mainly from an increase in the relative price of non-tradables.

18. In a calibrated model of the Canadian economy, Macklem (1993) finds that the net effect of a permanent deterioration in the terms of trade due to a commodity price shock is a long-term shift in resources from the commodity and non-tradable sectors to the manufacturing sector.

19. For example, Amano and van Norden argue that, based on 1991 figures, a 20% increase in Canada’s net energy balance could be offset by a drop in non-energy exports of less than 1.5%.

might still be an important improvement over floating rates if the desired movement is only a small portion of the exchange rate volatility that we currently observe.

van Norden (1993) presents tests for speculative bubbles in the Canada-U.S. exchange rate over the 1977-91 period. His approach relies on tests for regime switching in exchange rate innovations (i.e, the unexpected changes in the exchange rate) that would be consistent with bubble behaviour. Exchange rate innovations are assumed to reflect both innovations in the fundamental exchange rate and the unexpected persistence of a speculative bubble.²¹ The probability that a bubble will collapse is assumed to increase as the bubble grows and the model allows for the possibility that bubbles collapse only partially. The model predicts that the relationship between exchange rate innovations and deviations from fundamentals will depend on whether a bubble (if it is present) survives or collapses. As the two regimes (survival and collapse) are unobservable, a regime switching technique is used to evaluate the probability of each regime at any point in time. In the paper, four simple reference models of exchange rate fundamentals are considered: relative purchasing power parity, uncovered interest rate parity, a sticky-price monetary (or overshooting) model with calibrated parameters, and a simple function of the current account balance.

The tests provide some support for the predictions of the bubble model. The results, however, are not robust to the choice of model used to explain exchange rate fundamentals. Evidence supporting the bubble model is most consistent for the Canada-U.S. exchange rate using an overshooting model of fundamentals, but not with other alternatives. While the tests produce no precise measure of the relative importance of bubbles, the results suggest that bubble collapses account for only a small fraction of the month-to-month variability of the spot exchange rate.

V. Monetary Policy

Fixed exchange rates are not incompatible with internal price stability if a country pegs its currency to that of a country whose monetary authorities are credibly pursuing a price stability objective. Notably, high inflation countries may be able to lower the cost of disinflation by pegging to a low inflation currency. For example, high inflation countries in the European Monetary System (EMS) may have benefited by “borrowing” policy credibility from the Bundesbank.²² Fixed exchange rates will not be an advantageous way to reduce inflation, however, if there is more tolerance for inflation in the country to which the currency is pegged.

In any case, given the size and rapid growth of international capital flows in recent years, it appears that central banks in practice cannot assure the survival of an exchange rate peg

20. This claim is often buttressed by the observation that few speculators base their trading on information about economic fundamentals. For example, see Allen and Taylor (1990). Evidence from survey data is also often cited as evidence that the behaviour of speculators is not fully rational. See Frankel and Froot (1987, 1990).

21. van Norden notes that the approach cannot establish conclusively the presence or absence of bubbles since the switching regression, which is motivated by the assumption of speculative bubbles, could also be motivated by the presence of a switch in fundamentals. This kind of problem occurs, unfortunately, in all bubble tests.

22. Weber (1992) concludes that “borrowing counter-inflation reputation” from the Bundesbank in order to disinflate has worked for some countries (Denmark, Ireland, the Netherlands, and to some extent Belgium) but not for others (France and Italy). Revenga (1993) finds, however, that there is only weak evidence (mainly in the latter half of the eighties) in support of the claim that the EMS has served as an effective disciplinary device for monetary policy in member countries.

against a determined attack -- particularly one that is motivated by a shift in fundamentals that requires a change in the real exchange rate. While a tighter monetary stance and the resulting rise in interest rate differentials may support the peg in the very short term, speculators are likely to believe that such policies will not be pursued for any sustained length of time.

Near perfect capital mobility and asset substitutability between Canada and the United States would make an independent and effective monetary policy an impossibility in Canada under a fixed exchange rate system. A flexible exchange rate system, in contrast, offers several advantages both with regard to setting national monetary objectives and achieving them.²³ In an open economy with a flexible exchange rate, monetary policy will transmit its effects to aggregate demand through both interest rate and exchange rate channels. As exchange markets and money markets react to perceived monetary policy initiatives, the monetary authorities cannot predict to what extent their policy actions will be transmitted via the exchange rate or the interest rate channel. To account for these effects, the Bank of Canada has developed an indicator of monetary conditions (the monetary conditions index or MCI) that weights the approximate relative effects of interest rates and exchange rates on aggregate demand. This index, with the appropriate caveats, is used as an operational target in the conduct of monetary policy.²⁴

The fact that the exchange rate responds to economic fundamentals does not imply that bandwagon effects and destabilizing exchange market dynamics cannot occasionally complicate the conduct of monetary policy in Canada. These episodes are typically short lived, however, and triggered by factors of a more fundamental nature (e.g., growing fiscal deficits and political uncertainty), as opposed to the capricious whims of speculators. In many instances, shifts in investor sentiment serve as a useful disciplining device and a barometer of policy credibility. Owing to the potential volatility of exchange rate expectations in a flexible exchange rate regime with a high degree of international capital mobility, the economy's need for a stable nominal anchor is reinforced. An overall monetary policy framework aimed at price stability provides such an anchor.

The goal of monetary policy in Canada is to provide on a sustained basis an economic environment that is free from the distortionary effects of inflation. In early 1991, the Bank of Canada, in conjunction with the government, announced formal inflation reduction targets. The targets were expressed in terms of the year-over-year increase in the consumer price index (excluding some volatile elements). The initial objective of reaching a 1 to 3 per cent of core inflation by 1995 has been achieved. In December 1993, the target bands were extended to the end of 1998. By 1998, a decision will be made regarding what further reduction in inflation would be consistent with price stability. While policy credibility must be earned, the establishment of a formal inflation control target has helped to demonstrate the commitment of both the central bank and the government to the achievement of price stability and to reinforce accountability.

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23. See Crow (1993) for a review of the conduct of Canadian monetary policy under floating exchange rates.

24. For a more detailed explanation of the MCI and its role in the conduct of monetary policy in Canada, see Freedman (1994).

VI. Conclusion

In summary, the case presented here for a flexible exchange rate for Canada is based on three key arguments. First, there is the recognition that the Canadian economy is buffeted by external shocks, often associated with its terms of trade, that differ significantly from those affecting its major trading partner, the United States. Second, the exchange rate plays an important role in facilitating adjustment to these shocks and exchange rate movements reflect, in the main, economic fundamentals. Third, there is the conviction that monetary policy can best serve the country's interests by assuring a stable value for money -- i.e. by promoting price stability -- and a belief that monetary independence, as permitted by flexible exchange rates, is needed to achieve this goal.

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