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Canada should pursue North American currency union, economists say

Canada's floating exchange rate is not serving the country's economic interests well, and the solution could be to work toward establishing a North American currency union, say two of Canada's most distinguished economists in a study released today by the C.D. Howe Institute.

The study, *From Fixing to Monetary Union: Options for North American Currency Integration*, was written by Thomas J. Courchene of Queen's University and Richard G. Harris of Simon Fraser University.

The authors argue that Canada's experience with a floating exchange rate for the dollar has been disappointing. Floating rates make real exchange rates more volatile, do not appear to offer effective buffers against external shocks, and can result in prolonged currency misalignments, as the current period of pronounced weakness relative to the US dollar demonstrates. Such weakness and volatility may tend to discourage productivity improvements in Canadian firms that export or compete with imports; bias investment toward US locations and thus away from Canadian ones; and discourage the development of human-capital-intensive industries in Canada.

Courchene and Harris argue that, as the Canadian economy becomes more open to trade and investment flows and as those flows become more focused on the United States, the cost-benefit calculation is growing in favor of greater exchange rate fixity with the US dollar. Such an arrangement, the authors say, would encourage wage and price flexibility in Canada as firms and workers became more conscious of their competitive positions in North America; stabilize prices for Canadian financial and real assets; and reduce currency conversion and other transaction costs on crossborder trade and investment.

Courchene and Harris explain that the options for greater exchange rate fixity run the gamut from exchange rate targets, through adjustable pegs, a fixed exchange rate fully backed by both the central bank and federal and provincial fiscal policies, a currency board, "dollarization" — whether "market dollarization" (the move by private sector agents to adopt the US dollar for a range of purposes) or "policy dollarization" (an official decision by the policy authorities to proclaim the US dollar as legal tender) — all the way to a formal North American Monetary Union (NAMU). Courchene and Harris argue that, of the single-currency options, a currency union would be far preferable to dollarization.

Responding to fears that moving to a fixed exchange rate monetary regime or currency union would involve a loss of sovereignty for Canada, Courchene and Harris say that such a loss would be more apparent than real. They point out that it was during the fixed rate period of the 1960s that Canada developed its comprehensive social policy infrastructure.

As a final argument, Courchene and Harris note that, in any case, events elsewhere in the Americas are forcing the issue. There is already a trend toward dollarization both in free trade partner Mexico and in Argentina, which may serve to constrain the potential for a North American currency union. Canada needs to be part of any public debate on the evolution of North American currency arrangements, the authors argue, to ensure that the NAMU option remains on the table.

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Communiqué

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Le Canada devrait rechercher une union monétaire en Amérique du Nord, affirment des économistes

Le taux de change flottant du Canada n'aide pas les intérêts économiques du pays et la solution pourrait consister à établir une union monétaire nord-américaine. C'est du moins ce qu'affirment deux des économistes les plus éminents au pays, dans le cadre d'une étude publiée aujourd'hui par l'Institut C.D. Howe.

Intitulée *From Fixing to Monetary Union: Options for North American Currency Integration (Du taux de change fixe à l'union monétaire : choix de l'intégration monétaire en Amérique du Nord)*, l'étude est rédigée par Thomas J. Courchene de l'Université Queen's et Richard G. Harris de l'Université Simon Fraser.

Les auteurs soutiennent que l'expérience qu'a faite le Canada du taux de change flottant pour le dollar s'est avérée décevante. Un taux flottant entraîne une instabilité des taux de change réels, ne semble pas offrir un tampon efficace contre les chocs externes et peut se solder par un mauvais alignement prolongé des devises, ainsi qu'en témoigne la période actuelle de faiblesse prononcée de la devise canadienne par rapport au dollar américain. Une faiblesse et une instabilité telles auraient tendance à dissuader les entreprises canadiennes qui sont exportatrices ou qui font concurrence aux importations d'effectuer des améliorations de la productivité, elles pourraient encourager les investissements vers les emplacements américains au détriment des emplacements canadiens et elles pourraient décourager l'essor des industries aux besoins élevés en capital humain au pays.

Selon MM. Courchene et Harris, au fur et à mesure que l'économie canadienne s'ouvre davantage au commerce et aux flux d'investissement et que ces flux se concentrent davantage sur les États-Unis, le calcul coûts-avantages croît en faveur d'une fixité accrue du taux de change par rapport au dollar américain. De telles dispositions, ajoutent les auteurs, stimuleraient la souplesse en matière de prix et de salaires au Canada, car les entreprises et les travailleurs seraient plus conscients de leur position concurrentielle en Amérique du Nord; elles permettraient également une stabilisation des prix pour les biens financiers et immobiliers, et elles réduiraient la conversion monétaire et les autres frais de transaction du commerce et de l'investissement transfrontaliers.

MM. Courchene et Harris expliquent que les choix d'une fixité accrue du taux de change sont vastes, qu'il s'agisse d'objectifs de taux de change, d'un système de parité ajustable, d'un

taux de change fixe entièrement soutenu par la banque centrale, et les politiques budgétaires des gouvernements fédéral et provinciaux, d'un conseil de la devise, d'une « dollarisation » — consistant en une « dollarisation du marché » (l'adoption par les agents du secteur privé du dollar américain dans divers secteurs) ou en une « dollarisation politique » (une décision officielle par les responsables politiques de proclamer le dollar américain comme monnaie légale) — ou encore d'une union monétaire nord-américaine en bonne et due forme. Les auteurs soutiennent que parmi les choix de monnaie unique, c'est celui de l'union monétaire qui serait de loin préférable à celui de la dollarisation.

Face aux craintes que l'adoption d'un régime monétaire à taux de change fixe ou d'une union monétaire n'entraîne une perte de souveraineté pour le Canada, les auteurs affirment que cette perte serait plus apparente que réelle. Ils soulignent également que c'est au cours des années 60, durant lesquelles le Canada avait adopté un taux de change fixe, que le pays a pu élaborer son infrastructure détaillée de politiques sociales.

En conclusion, MM. Courchene et Harris font la remarque que de toute manière, les événements qui se déroulent ailleurs en Amérique imposent une décision. Il se manifeste déjà une tendance à la dollarisation non seulement dans un pays membre du libre-échange, le Mexique, mais également en Argentine, et cette situation pourrait restreindre les possibilités d'une union monétaire nord-américaine. Selon les auteurs, le Canada doit participer à tout débat public sur l'évolution des dispositions monétaires en Amérique du Nord pour veiller à ce que l'option d'une union monétaire nord-américaine demeure une possibilité.

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From Fixing to Monetary Union:

Options for North American Currency Integration

by

Thomas J. Courchene
and
Richard G. Harris

Canada's experience with a floating exchange rate for its dollar has been disappointing. The floating dollar has been prone to major misalignments, as its current weakness demonstrates, that put Canada at a disadvantage in the North American competition for physical and human capital investment. As the Canadian economy becomes more open to trade and investment flows, and as those flows become more focused on the United States, the benefits of greater exchange rate fixity with the US dollar are growing.

There are many options for greater exchange rate fixity, running from exchange rate targets through a formal North American Monetary Union (NAMU). Particularly in comparison with growing spontaneous use of the US dollar by the private sector in Canada, a NAMU would offer important benefits for macroeconomic stability and financial integration.

With interest in using the US dollar growing elsewhere in the Americas, delay on Canada's part in embracing this option could prove costly. US cooperation in establishing the new currency and in providing central banking services to Canadian financial institutions would be valuable, but if other countries adopted the US dollar without such concessions, Canada's chances of obtaining them would diminish. For that reason, Canada should make haste in investigating the possibility of establishing a monetary union in cooperation with the United States.

Main Findings of the Commentary

- Canada's experience with flexible exchange rates for its dollar has been disappointing. Floating rates make real exchange rates more volatile, do not appear to offer effective buffers against external shocks, and can result in prolonged currency misalignments, such as the recent period of pronounced weakness in the Canadian dollar.
- Prolonged misalignments, or overshoots, in the value of the Canadian dollar raise several risks. Periods of weakness, such as the present, may discourage productivity improvements in Canadian firms that export or compete with imports. More generally, a volatile exchange rate will tend to bias investment toward US locations and thus away from Canadian ones, and to discourage the development of human-capital-intensive industries in Canada.
- Canada's growing openness to international trade and investment, and the concentration of those trade and investment flows on the United States, are tipping the cost-benefit calculation in favor of greater exchange rate fixity with the US dollar. Such an arrangement would encourage wage and price flexibility in Canada as firms and workers became more conscious of their competitive positions in North America; stabilize prices for Canadian financial and real assets; and reduce currency conversion and other transaction costs on crossborder trade and investment.
- Options for greater exchange rate fixity run the gamut from exchange rate targets, through adjustable pegs, a fixed exchange rate fully backed by both the central bank and federal and provincial fiscal policies, a currency board, "dollarization" with or without government backing, and a formal North American Monetary Union (NAMU). In terms of single currency options, a currency union would be far preferable to dollarization.
- The loss of sovereignty involved in a fixed rate regime would be more apparent than real. It was during the fixed rate period of the 1960s that Canada developed its comprehensive social policy infrastructure.
- Events elsewhere in the Americas are forcing the issue. The apparent trend toward dollarization in both Mexico and Argentina may serve to constrain the potential for a North American currency union. Canada needs to be part of any public debate on the evolution of North American currency arrangements to ensure that the NAMU option remains on the table.

The introduction of the euro in January 1999 represents a watershed in the annals of economic and monetary history. At one level, the advent of the euro signals the denationalization of national monetary regimes; at another, it signals that, in a progressively integrated global economy, currency arrangements are a supranational public good, one that is arguably consistent with a twenty-first-century vision of what constitutes national sovereignty. Understandably, perhaps, Canadian officials responsible for macroeconomic policy do not share this view. As Bank of Canada Governor Gordon Thiessen noted in a recent speech, "the euro is not a blueprint for a North American monetary union. The political objectives that motivated monetary union in Europe do not have a parallel in North America" (1999, 123).

Granted, the North American Free Trade Agreement (NAFTA) is largely a trade and economic blueprint, whereas integration in the European Union (EU) incorporates, in addition, aspects of a confederal or federal overarching structure. But to link the euro solely to Europe's political evolution is to ignore the compelling economic rationales for a supranational currency: it is highly unlikely, for example, that the British would ever buy into the overarching European political project, but they are highly likely to embrace the euro. Even in Switzerland, which is not a member of the EU, private sector agents appear to be embracing "market euroization" — that is, adopting the euro for a range of purposes, such as transactions and as a unit of account; in the North American context, this is called "dollarization."[1] As Tagliabue notes:

> The reasons for this [Swiss] enthusiasm for the euro are clear. Switzerland, with just seven million people and an area a little larger than Maryland's, is surrounded by four euro nations — Germany, France, Italy and Austria — and conducts about 70 percent of its trade with the 15 nations of the European Union.

For its part, Canada's exports are even more dependent on the US market (more than 80 percent of our exports go there) than Switzerland's are on the EU. This enhanced degree of North American integration features prominently in the analysis in this *Commentary*, which aims to make the case for greater fixity in the Canadian / US dollar exchange rate, the ultimate goal being a North American Monetary Union (NAMU) with many elements along euro lines.

Governor Thiessen's preference for maintaining Canada's flexible exchange rate regime is based primarily on the premise that the floating rate is serving the country well:

> Canada has a very useful economic safety valve in its floating exchange rate. Because movements in the Canadian dollar reflect external shocks as well as any domestic economic difficulties we may face, there is sometimes a tendency in Canada to blame such movements as the cause of our problems. In fact, these currency movements are a consequence, not a cause. Exchange rate flexibility has served us well over time. Why would we want to give it up? (1999, 123.)

Our view, however, is that a floating exchange rate is not, in fact, serving Canada well within the progressively integrated NAFTA environment; that there are persuasive arguments for greater exchange rate fixity; and that the longer-term objective of greater exchange rate fixity should be a common North American currency. The purpose of this *Commentary* is to examine these propositions and to look at some of the alternative approaches along the continuum from floating rates to monetary union, including pegged rates, fixed rates, currency boards, and dollarization.

While a NAMU is not on the immediate horizon, there is nonetheless an urgent need to

place the currency union issue on the public policy agenda. Policy developments within the NAFTA and elsewhere in the Americas appear to be moving quickly in the direction of dollarization. Since widespread dollarization could preclude the emergence of a NAMU by reducing the advantages the United States would garner from it and since, as we argue below, a NAMU would be preferable to dollarization from a Canadian perspective, Canada must become engaged on this issue with its NAFTA and hemispheric partners — and sooner rather than later.

One final introductory note is in order. One of the by-products of Canada's pursuit of monetary independence is that the exchange rate has been a market-determined variable, and in this sense there is a close link between monetary policy and exchange rate policy. The purpose of this *Commentary* is to assess Canada's exchange rate options: it is not intended as a criticism of Bank of Canada monetary policy. In our view, the same debate on currency and exchange rate issues would be under way whether the Bank was targeting inflation or unemployment or the growth rates of monetary aggregates.[2]

The Economics of Exchange Rate Fixity

One can make a number of broad characterizations about the behavior of economies operating under differing exchange rate regimes. Beginning with what economists think they know about how economies work under floating versus fixed regimes, we start with a look at the implications of the exchange rate regime for living standards, productivity, currency confidence, and a number of subsidiary issues.

What Economists Know about Exchange Rate Regimes

Since the demise of the Bretton Woods international monetary system in 1971, there has been a wide range of international experience with respect to exchange rate regimes, both fixed and floating.

(As an important aside, since Canada began its floating rate regime as long ago as 1970, few decisionmakers in government, the bureaucracy, business, or labor know, or remember, how an economy functions under fixed rates. Hence, the Canadian historical experience under flexible rates is, at best, an imperfect lens through which to examine the adjustment requisites and dynamics under a fixed rate regime, especially since such a system implies a wholesale transformation in the way an economy responds to various shocks, whether external or policy induced.)

What, then, does this international experience tell us about flexible versus fixed rates? Clearly, from the perspective of the 1960s and 1970s, flexible rates have not operated as economists had imagined they would. In 1953, Milton Friedman's case for flexible exchange rates included the proposition that

> instability of [flexible] exchange rates is a symptom of instability in the underlying economic structure...a flexible exchange rate need not be an unstable exchange rate. If it is, it is primarily because there is underlying instability in the economic conditions. (Quoted in Flood and Rose 1998, 2.)

This has turned out not to be the case, however. Rather, the evidence points to three basic propositions.[3]

First, over any period of time short enough to be interesting, real exchange rates[4] are substantially more volatile under a flexible rate regime than under a fixed one, and almost all of this volatility is due to movements in the nominal exchange rate. The Canadian-US bilateral real exchange rate can appreciate either because the Canadian dollar appreciates relative to the US dollar or because prices rise in Canada relative to those in the United States. It is important to recognize that real exchange rates

move all the time and that they will adjust even if the nominal exchange rate is completely fixed, but at a much slower rate, in line with movements in the general level of prices. Eliminating volatility in the nominal exchange rate will eliminate most of the short- and medium-term volatility in the real exchange rate.[5]

Second, macroeconomic fundamentals cannot explain short- to medium-term exchange rate movements. More important, there is no systematic difference in macroeconomic stability between fixed and flexible exchange rate regimes. As Flood and Rose note:

> Simply put, to a first approximation, countries with fixed exchange rates have less volatile exchange rates than floating countries, but macro-economies that are equally volatile....By choosing the exchange rate regime, policy thus has an important effect on exchange rate variability, but not on the volatility of traditional macro-economic fundamentals. (1998, 2–3.)

An important corollary of this observation (Bank of Canada Governor Thiessen's views notwithstanding) is that the benefits of either fixed or flexible rates as shock absorbers should not be overstated. As economists discovered in the 1970s, neither flexible nor fixed rates can prevent the rapid international transmission of inflation nor, as economists learned in the 1980s, can they prevent a large number of countries (including Canada) from pursing unsustainable fiscal policies. Poor economic policies (whether micro- or macroeconomic) lead to undesirable economic consequences, whatever the exchange rate regime. The process by which the policy mistake is transmitted can differ, but the ultimate consequences are similar.

Third, nominal exchange rates can wander from important long-term-trend fundamentals for significant periods of time, often two years or longer. This is referred to as the "misalignment problem." The most infamous global misalignment was that of the soaring relative value of the US dollar in the early 1980s, which ultimately led to the coordinated intervention of five large industrialized countries in 1985 in an attempt to bring it down. Canada has had two serious periods of misalignment in the past decade: the late 1980s, when the dollar reached 89 US cents, and the recent period, in which the dollar has approached 63 US cents.

Identifying misalignment under flexible exchange rates is an imperfect and judgmental process. In the short run, the exchange rate responds primarily to capital movements, which, in turn, are induced by real or financial market shocks. A misalignment is judged to occur when, for long periods, these shocks seem to unlink exchange rates from economic fundamentals.

Economists have proposed a number of methods to identify misalignment. The principal method has always been calculations of purchasing power parity (PPP), which adjust for relative price-level changes across countries. While PPP theory is notoriously poor in explaining exchange rates over short periods, it does seem to have long-run predictive power. Long-term exchange rate trends are relatively well characterized by slow reversion to PPP values and, after any substantial departure, convergence appears to take between four and six years.

Another way to benchmark fundamental-based exchange rates is to use the notion of a fundamental equilibrium exchange rate (FEER) (Williamson 1994), which corrects for longer-term structural factors, including current account imbalances, terms of trade shocks, and foreign debt servicing. However, the concept of a FEER also has a number of problems, not the least of which is that the economy can adjust to current account imbalances and stocks of net foreign debt through channels other than the exchange rate. In any case, whether using PPP or FEER benchmarking, exchange rate misalignment is a recurring problem.

From a policy perspective, the choice of a monetary regime would be much easier if exchange rates reacted predictably to macroeconomic events and if one regime was clearly superior to the other in its ability to act as a shock absorber. The evidence on macroeconomic volatility suggests, however, that this is not the case. Much of the impetus on the part of smaller countries for moving to a fixed rate relates to volatile exchange rates and periods of severe misalignment and the consequences of these problems for the economy. The larger the portion of the economy exposed to international trade and investment, the more serious these consequences become. A major reason Canada should move toward the fixed end of the spectrum of alternative currency arrangements is to avoid these costs. We develop these arguments further below.

Living Standards and Exchange Rates

During the 1960s, the Canadian dollar was tied to the US dollar at a rate of 92½ US cents. Thanks to substantial *upward* pressure on the dollar, Canada floated its currency in 1970. By 1973 or so, the Canadian dollar traded at roughly 104 US cents. Twenty-five years later, the dollar was in the mid-60s-US-cents range, dipping as low as 63½ cents during the summer 1998 currency crisis.

A substantial part of the Canadian dollar's depreciation from 1973 to the mid-1980s can be attributed to inflation differentials between the two countries. By 1988, a PPP calculation suggested the long-run appropriate value of the Canadian dollar was in the 80-US-cents range. Since that time, pre-tax personal income per capita in Canada has fallen relative to that in the United States, magnified by Canadian exchange rate depreciation, which suggests there has been a significant fall in Canadians' average standard of living relative to that of Americans. This trend is reflected in the movement of young, well-educated people to the United States, increasingly attracted by employment opportunities in that country — especially on the basis of after-tax comparisons — and in the growing number of Canadian business executives who demand to be located in the United States or remunerated closer to US levels.

Under a fixed exchange rate regime, it might have been possible to isolate the sources of the relative decline of Canadian living standards and so to identify the more likely policy repairs. Under flexible rates, however, policymakers are uncertain as to whether the decline is permanent or the consequence of a misaligned dollar, which may be self correcting.

It is important to emphasize that a falling nominal exchange rate does not necessarily indicate a falling standard of living (and neither does a rising exchange rate indicate the opposite). A falling standard of living is associated with shifts in trend productivity growth that ultimately must be reflected in real wages or profits. A nation can have a falling rate of productivity growth relative to its trading partners' average, while experiencing almost any pattern of nominal exchange rate movement, depending on developments in nominal wage and price levels. We take up the productivity issue in more detail below.

Rationalizing the Recent Decline of the Canadian Dollar

One can, of course, attempt to rationalize the relative decline of the Canadian dollar by appeal to fundamentals, as McCallum (1998) and Orr (1999) have done. For example, Canada's proclivity to rely on external sources of capital meant that interest payments to foreigners increased from $15.2 billion in 1987 to $26.5 billion by 1990 and to a peak of $30.3 billion in 1995 (*Bank of Canada Review*, Autumn 1998, table J1). These increases might be interpreted as requiring an increasingly large merchandise

trade surplus in order to equilibrate the overall current account balance and, therefore, a progressively lower exchange rate.[6]

Yet many economists, particularly those in the neoclassical tradition, discount calculations of the equilibrium value of the dollar using the current account balance as a benchmark — as Harris (1992), Chandler and Laidler (1995), and McCallum (1998), for example, have done — pointing out that the balance of payments is an identity, and a current account deficit is the necessary counterpart to an excess of national investment over national savings. In fact, a real exchange rate adjustment is only one of many influences on each item that make up the identity. Moreover, there are good reasons on fundamental grounds why aggregate savings might be less than aggregate investment for very long periods, as is the case in the United States. Thus, from this perspective, the recent dramatic improvement in the fiscal situations of the federal government and most provinces should remove some of the downward pressure on the Canadian dollar.

The Bank of Canada's (and McCallum's) preferred explanation for the decline in the relative value of the Canadian dollar is that the exchange rate is simply tracking global commodity prices. Indeed, over the 1973–99 period, there has been a close relationship between the decline in commodity prices and the exchange rate. And, over the past year, the Bank has put a positive spin on the dollar's fall, arguing that it is serving as a buffer to offset falling commodity prices and ensuring that Canada's level of economic activity is likewise buffered. But the buffering argument can account for only a small part of the exchange rate movements of the past decade or so.

The run-up in the exchange rate from 1988 to 1991 to 89 US cents during Canada's accession to the Canada-US Free Trade Agreement (FTA), for example, was induced by tight monetary policy, and did nothing to help Canada cope with the external shock of free trade. Moreover, as Harris (1993), Fortin (1994), and others have argued, the exchange rate appreciation over that period could not be justified by the real fundamentals in the economy. Since then, as Orr notes,

> commodity prices in US dollars weighted by Canadian exports rose significantly and steadily by 30% over the 1992-1996 period. At the same time the Canadian dollar fell sharply and steadily from 89 cents in 1991 to 73 cents in 1996. (1999, 5.)

The appropriate measure of the relevant external price shocks over this period is the change in Canada's terms of trade, which, using the Bank of Canada's export and import price indexes, declined by 3 percent from the first quarter of 1991 to the fourth quarter of 1998. Thus, Canada's terms of trade have generally been relatively stable in the 1990s and reveal no serious long-term negative trend. In fact, falling commodity prices have been matched by improvements in the prices of other manufactured exports and by reductions in the prices of imported consumer and capital goods.

Whether or not there is a correlation over a longer time frame between commodity prices and the value of the dollar, the buffer argument adds little to an understanding of the dollar's movements over the past decade, and should add little to Canadians' enthusiasm for a floating currency. The recent depreciation appears to look increasingly like an overshoot, one that is having negative consequences on real resource allocation and investment and, ultimately, on confidence in the economy.

One explanation for the dollar's relative decline that has not been given enough attention is the economic boom that has taken place in the United States over the past seven years, particularly the extraordinary stock market boom. Many market commentators have suggested that this may be a stock market bubble with valuations that cannot be sustained — US Federal Reserve chairman Alan Greenspan has

famously called it "irrational exuberance." Indeed, the extraordinary returns in the US market relative to the Canadian market may have driven down the demand for Canadian dollar assets as foreign and Canadian investors shift into high-yielding US equities. At the global level, this asset boom has important consequences for the US dollar relative to both the yen and the euro, and the undervalued Canadian dollar may well be a reflection of an overvalued US dollar.

Empirically, it is hard to "prove" with certainty which of these explanations might be correct; they might all be so in part. None, however, contradicts the fact that the Canadian dollar is currently far below any value justified by fundamental benchmarks, and the downward trend has now been intact since 1992.

Depreciation and Productivity

Perhaps the most visible argument in media discussion of the dollar's relative decline is the possible relationship between the exchange rate and a slower rate of productivity growth in the manufacturing sector. Admittedly, in the short term, a falling dollar does allow Canadian exports to further penetrate the US market. But the other side of the low-exchange-rate coin is that it provides a cost disincentive in terms of productivity improvements: a 10 percent fall in the dollar means a 10 percent rise in the price of competing goods from abroad, as well as in the price of US capital equipment (or equipment priced in US dollars) for productivity enhancements. This issue is not new in the Canadian context — the Canadian dollar was low and productivity performance poor in the 1980s. As Harris (1993, 36) notes,

> [o]ne consequence of an undervalued exchange rate is that it protects inefficient operations from otherwise appropriate market signals. In the Canadian case, the robust demand growth in the [mid-1980s'] recovery plus the low exchange rate probably delayed appropriate productivity-improving investments in our manufacturing industry until much later in the decade.

John McCallum has raised the same issue with respect to the current depreciation:

> Canada's plummeting relative manufacturing productivity is a puzzle, especially when productivity was supposed to rise following free trade with the United States and when broader productivity measures have not shown a similar relative decline. The idea that a weak currency induces "laziness" on the part of the manufacturing sector is not one that appeals to this author, but it seems to be broadly consistent with the data, [which] suggests a "double dip" in Canada's relative manufacturing productivity for the first half of the 1980s and then in the period 1994–97. Both of these periods correspond roughly to times of weak currency. Indeed, there is a positive and significant correlation (R = .45) between the Canada-minus-US productivity growth gap and the lagged value of Canadian unit labour costs in manufacturing relative to the United States (expressed in the same currency). So it may be that a weak currency has been a *cause* rather than a *consequence* of poor productivity growth in our manufacturing sector. (1998, 3–4; emphasis added.)

McCallum offers more recent evidence (1999) that a 10 percent reduction in the relative value of the Canadian dollar is associated, two years later, with a 7 percent reduction in the ratio of Canadian to US productivity in manufacturing. Since Canadians' future living standards depend on productivity growth, this finding is ominous indeed. Given the federal government's recently announced policy shift toward productivity issues, this relationship between exchange rate misalignment and productivity clearly merits attention.

One might characterize what has been happening in the following way. An underval-

ued Canadian dollar, coupled with low inflation, leads to a productivity slowdown relative to the United States, which is forging ahead on the strength of a boom in high-technology sectors. This tends to convert the originally undervalued dollar to an equilibrium of sorts. In turn, this puts pressure on the Canadian authorities to accommodate a further drop in the dollar to restore Canada's erstwhile competitive advantage. But this becomes a self-fulfilling process — allowing the exchange rate, rather than productivity, to drive competitive and comparative advantage.

This may be a tempting picture to paint, given Canada's recent experience, but it is much more in the nature of a hypothesis meriting further research than a conclusion. In particular, the hypothesis needs squaring with the standard view of firms as profit maximizers, which should be expected to seek whatever efficiency gains are accessible, regardless of the exchange rate or the regime by which it is determined. Nonetheless, given that Canadians' living standards ultimately depend on productivity, this is an issue with which defenders of Canada's flexible rate must come to grips.

The Costs of Misalignment

Closely related to, although more general than, the undervaluation-productivity argument is the longer-run response of the structure of the economy to both under- and overvaluation of exchange rates for extended periods. These arguments hinge on the mobility of firms and highly skilled individuals across the Canada-US border.

In the case of an overvaluation, firms can take defensive measures by cost cutting and absorbing cost increases through decreased profits. But the 1986–92 overshoot,[7] which, from trough to peak, increased Canadian unit labor costs by nearly 40 percent (measured in a common currency), generated a degree of overvaluation that swamped any productivity improvements. Moreover, the FTA presented Canadian firms and subsidiaries with an option other than lowering costs or shutting down: they could move to a US location, and a number of highly publicized moves did occur. No doubt some of these relocations were made in the expectation that the overvalued exchange rate was permanent. The general point is that, with misalignment of this degree, downsizing, moving offshore, and exiting become attractive avenues of adjustment for firms.

This misalignment problem has even greater significance when recast in the context of Canada's shift away from a resource-based economy toward one increasingly driven by human capital and technology — what Harris (1993) has called a fundamental shift in their "wealth-generation processes." From 1989, the first year of the FTA, until 1997, the export sectors that saw the greatest increases (as a percentage of gross domestic product, GDP) were, in order, transport equipment (including autos), machinery and equipment, electrical and communication products, lumber and wood, and chemical and chemical products, followed by several services categories. The export groups that contracted the most (again, as a percentage of GDP) were, in order, grains, utilities, metallic ores and concentrates, nonmetallic minerals, and petroleum and coal products (Grady and Macmillan 1998). Only one of the former group falls into the commodities category, whereas all five of the latter group do.

In a resource-based economy, floating rates are a smaller problem, since organized commodity spot markets mean that most resource exports are already priced in US dollars and hedging is relatively straightforward. In non-resource areas, where less easily hedgible long-term bilateral contracts are important and where the economy has a significant import-competing manufacturing sector, movements in the exchange rate are bound to be problematic. From the perspective of the firm:

> The problem arises because free trade requires stable and predictable rates of international exchange and cost calculations to support the volumes of trade and degree of specialization associated with it. This predictability becomes more important the larger the volumes of trade, the more international exchange on a long-term bilateral basis [because it is difficult to hedge exchange rate risk from contracts upward of a year or so] and the lower the degree of entry barriers to an industry. Unfortunately, floating exchange rates provide inherently volatile and unpredictable cost structures ....Students of international business observe that major determinants of direct international investment decisions have been exchange rate volatility and anticipated protectionist actions in the markets of the major industrial countries. The argument is made that flexible exchange rates have induced a pattern of location based on criteria other than comparative or competitive advantage, thus undoing many of the benefits achievable through free international trade in a world of known structures and flexible prices. (Harris 1993, 39–40.)

The dynamics of the response to a particular misalignment vary significantly with the human capital intensity of the sector in question. In the case of overvaluation, firm exit (or relocation) is the ultimate response. With a serious undervaluation, such as Canada is now experiencing, the process works quite differently.[8] The immediate effect of the depreciation is to shift income in Canada from wages to profits. With real wages in the United States rising relative to those in Canada, skilled labor begins to migrate. Many firms will resist raising wages in the short run, and would rather use the depreciation to cut prices and build market share. If the low exchange rate persists, most firms will ultimately come to realize that the situation is unsustainable in the longer term: they will either have to raise real wages for their skilled workers or follow them to the United States.

Do new firms not enter or expand during periods of undervaluation? There is some evidence this does occur in traditional sectors. For firms whose business is based on skilled labor, the difficulty is that, during periods of exchange rate undervaluation, skilled labor markets become very tight. New entry, based on a cost advantage due to an undervalued exchange rate or on wages that might be temporarily low in domestic currency, is very risky. The net impact is that firms may exit in periods of overvaluation, and workers may exit in periods of undervaluation. For a smaller country, building comparative advantage in human-capital-intensive industries becomes quite difficult if both firms and highly skilled labor are mobile between the two countries. The irony is that repeated periods of exchange rate misalignment are likely to result in the shift of Canadian comparative advantage toward industries that are resource and/or capital intensive, and in an employment base that is both less diversified and less human capital intensive than would be the case with exchange rate stability.[9]

In our view, then, the costs of exchange rate misalignment (or the benefits of greater exchange rate fixity) can be summarized as follows:

- The benefits of exchange rate fixity increase with the degree of international openness, especially when this openness incorporates such a high degree of export integration with a currency and economic superpower (80 percent, in the case of Canada in relation to the United States).
- Fixed exchange rates give Canada a better chance of getting its fair share of North American investment based on the competitive advantage of its firms and industries (in contrast to location decisions made on the size of the market in order to isolate firms from exchange rate volatility).

- Canada's ability to generate and sustain high-wage jobs depends on sustaining human-capital-intensive, but otherwise highly mobile, industry within the North America market. Repeated periods of exchange rate misalignment severely hamper the development and growth of those industries and firms in Canada and promote excessive specialization in capital- and resource-intensive industries.

The analytical and empirical evidence is such that free trade and currency stability should go hand in hand in North America: free trade and flexible rates are inherently inconsistent (Harris 1993, 59). The time has come for Canadians to contemplate a wholesale rethinking of their currency arrangements in North America.

North-South Integration

Now that we have broached the issue of North American integration, it is important to highlight selected recent developments. Drawing from Courchene and Telmer (1998, chap. 9), the following aspects of the increasing north-south integration appear particularly relevant:

- In 1996, all but two provinces exported more to the rest of the world (international exports) than they did to other provinces (interprovincial exports).
- For each dollar of interprovincial exports in 1996, international exports were running at $1.83. In the early 1980s, the opposite was the case: interprovincial exports ran above international exports.[10]
- Since more than 80 percent of Canada's international exports are destined for the United States, north-south trade clearly exceeds east-west trade in the aggregate.
- In the interesting case of Ontario, its interprovincial exports (and imports) were running at roughly the same level as its international exports (and imports) in 1980. By 1996, however, the province's international exports were roughly two and a half times its interprovincial exports and growing nearly a magnitude faster. More recent data indicate that about 90 percent of Ontario's international exports are destined for the US market. Indeed, nearly 44 percent of Ontario's GDP is now exported to the United States.

Compare these integration data with those pertaining to the 15 countries of the EU. On average, 62.9 percent these countries' exports go to other EU members (Courchene forthcoming), representing 16 percent of the combined GDP of the EU (Canadian exports to the United States are 30 percent of GDP). To be sure, these aggregate data mask important differences across EU members. Nonetheless, at the aggregate level, Canada is integrated with the United States to a greater degree with respect to trade than the average EU member is to the EU. Hence, on economic integration grounds, the argument for a common currency is at least as compelling from Canada's vantage point as that for the average EU member.

A Regional Perspective on Asymmetric Shocks

To this trend toward sharply increased north-south trade integration one should add that Canada's regions appear to march to quite different cyclical forces. For example, the 1980s' recession was short lived in central Canada, which latched onto a US recovery triggered by the rebound in the North American auto industry and the Reagan administration's economic stimulus. The economy in the rest of the country languished, however, as a result of a collapse in commodity prices. The 1990s' recession was quite different: British Columbia

skated through it largely unscathed, whereas the impact on central Canada was severe.

Even prior to the FTA and the shifts that it subsequently induced, eastern and western Canada displayed cyclical patterns that differed markedly from one another and from other regions of the continent. When one eliminates common demand shocks due to similar fiscal and monetary policies, the inherent asymmetry in the supply shocks that hit eastern and western Canada and the relatively strong correlations between western Canada and the southern and western regions of the United States and Mexico become apparent (see Table 1).

Table 1: ***Regional Economic Cycles in North America, 1966–86***
(correlation between eastern and western Canada and other North American regions in the timing of supply shocks)[a]

	Eastern Canada	Western Canada
Eastern Canada	—	0.30
Western Canada	0.30	—
United States		
New England states	0.11	0.01
Mid-Atlantic states	0.15	– 0.26
Great Lakes states	0.06	– 0.07
Plains states	0.37	– 0.10
Southeastern states	– 0.03	– 0.52
Southwestern states	– 0.05	0.54
California	0.23	0.14
Northwestern states	0.05	0.52
Mexico	0.14	0.57

[a] The closer the number is to 1.00, the greater the similarity of experience in one region and another.

Source: Bayoumi and Eichengreen 1994, table 11.

In tandem, north-south integration and the nonsynchronization of east-west business cycles raise the central issue of whether or not Canada is an "optimal currency area." To be sure, this is not a novel issue, since it was at the core of Mundell's influential 1961 essay on optimal currency areas, which argued that North America (or at least the United States and Canada) would be better served by a western dollar and an eastern dollar than by a Canadian dollar and a US dollar.

At base, the key question is whether the asymmetric external shocks that affect Canada tend to be north-south or east-west. If they are the former, Canada would constitute an optimal currency area.[11] This is central to the argument that Canada needs the macroeconomic instrument of a flexible exchange rate to buffer these asymmetric north-south shocks. Since resources account for a larger component of Canadian GDP (relative to US GDP), this is *prima facie* evidence in support of a stand-alone currency. Or is it? Prior to addressing this view of the exchange rate as a macroeconomic buffering instrument, it is instructive to come at this asymmetric-shock issue from a regional, rather than a national, perspective.

Consider the following thought experiment. As a result of enhanced north-south integration and the nonsynchronization of regional shocks, Canada is appropriately viewed less as a single east-west economy and more as a series of regional, crossborder economies. In this context, suppose British Columbia were to align its policies to become competitive in the US northwest and the Pacific rim. Likewise, suppose Alberta were to set its domestic cost and tax parameters so that they were on par with its competitors in the Gulf of Mexico, Ontario and Quebec were to gear their economic policies to match those of the US Great Lakes states, and so on, so that each province or region aligns itself to be competitive with its cross-border counterpart.

Now, in the event of a commodity price boom, BC lumber (for example) would be affected in the same way as northeast US lumber, Alberta oil would face the same price change as oil from the Gulf of Mexico, auto manufacturers in Oshawa and Windsor would remain in step with their counterparts in Detroit, and so on. But if Canada were to respond to the commodity price shock by appreciating the

exchange rate *vis-à-vis* the US dollar, then all of Canada's provincial/regional economies would be offside with respect to their US counterparts. This is questionable policy, especially if the exchange rate were to exhibit the volatility of the past 15 or so years. Arguably, each Canadian trading region would prefer to maintain exchange rate and transactions certainty with both east-west and north-south trading partners. The only way to do this would be to fix the Canadian dollar to the US dollar and to rely on other policies to accommodate the differing impacts of the terms of trade shock on the two national economies. Bayoumi and Eichengreen (1994) strongly suggest that this is the way things worked in the past, particularly for western Canada. They find less evidence of a link between eastern Canada and eastern US states, but their data are now quite dated.[12]

But even if one accepts this region-by-region view of shocks — that is, that the asymmetry at the regional level runs east-west, not north-south — one must still take account of what we refer to as the "macro shock" of the larger role that resources play in the Canadian economy. Thus, even if Canada's regions were affected by external price shocks in ways similar to their crossborder counterparts, there would still be asymmetric macro implications for the Canada and US economies.

Since this issue of adjusting to asymmetric macro shocks plays a critical role in the arguments for a floating exchange rate, additional perspective is warranted on the role of the exchange rate as a shock absorber. Cross-country evidence, in fact, challenges this role.

Cuddington and Liang (1998), in a cross-country study of commodity exporters and exchange rate regimes, document an important stylized fact regarding commodity prices using alternative data sets covering the 1880–1996 period. They find that the volatility of real commodity prices — defined as nominal commodity prices deflated by the manufacturing unit value-added index — is systematically higher under flexible exchange rate regimes than under fixed exchange rate regimes. In the Canadian context, the real commodity price is the price of commodities relative to the costs of the manufacturing sector. This, for all intents and purposes, is also the price of exports in the west relative to that in the east. Cuddington and Liang's results imply, consistent with both the Courchene and Mundell hypotheses, that the flexible exchange rate regime may actually have destabilized the internal regional price ratio relative to what would have occurred with fixed rates. There are a number of reasons this may occur, but one simple explanation is overshooting on part of the foreign exchange market in response to a commodity price shock.

But the task at hand is how to address the macro implications arising from a commodity price shock.

Macroeconomic Adjustment

How do Canada's regions, and the Canadian economy as a whole, adjust to macroeconomic shocks, as defined above? The current policy response is to use the floating exchange rate. But this is unlikely to buffer the shock, as the analysis above suggests, whereas a fixed exchange rate might reduce macro volatility. Suppose the Canadian/US dollar exchange rate were fixed, what adjustment mechanisms would be in place to accommodate potentially asymmetric shocks?

There would, in fact, be at least three such mechanisms. The first operates through the internal adjustment of prices. This is not, however, as significant a challenge as one might at first imagine because terms-of-trade shocks affect regional economies on both sides of the border in a similar fashion — that is, it is the exchange rate response, not the terms-of-trade change, that triggers crossborder disequilibrium for Canada's regional economies. Phrased differently, Ontario and Michigan (and Alberta

and Texas, and so on) would be allowed to adapt in the same way.

The second mechanism is fiscal policy, which would have to come to the rescue in the event of an external shock such as an oil price hike. But this has always been an integral part of the philosophy underpinning fixed rates. Moreover, it is probably important that individual provinces or regions become involved in the fiscal stabilization of the exchange rate. As Courchene (1990) argues, one would expect that regions that experience a favorable terms-of-trade shock would use their fiscal levers to temper their booms. Had Canada been under a fixed exchange rate system in the late 1980s, for example, the pressure on Ontario to temper, rather than fuel, its boom with fiscal policy would have been more explicit and intense, since everyone would have understood the implications for the fixed exchange rate.

The third accommodating mechanism, and arguably the most important, is the set of automatic stabilizers — including the national tax and transfer system, employment insurance, the equalization program, and Canada's high degree of internal migration — already in place to deal with region-specific shocks or Canada-wide terms-of-trade shocks, whether positive or negative.

Thus, there are mechanisms for accommodating regional and macroeconomic shocks under fixed rates. At the very least, further research is warranted on the nature of these shocks. It is also important, however, to recognize that the presumed buffering qualities of flexible rates are overestimated.

At an analytical level, it is instructive to note that Mundell's 1961 analysis of optimal currency areas was rooted firmly in the 1960s' Keynesian tradition, which treated nominal price and wage adjustment as infeasible. Indeed, these short-term nominal inflexibilities constituted the primary rationale for a flexible exchange rate between two regions, as it allowed for relative price adjustments that, by assumption, could not otherwise occur. Many economists now regard this analytical framework as empirically indefensible, given the well-documented studies of both price and wage adjustment mechanisms in modern industrial economies.

From this perspective, one of the major criticisms of Mundell's approach was that it ignored the regime-specific dependence of price-setting institutions. Flexible and volatile exchange rates encourage price setters to delay changing prices or renegotiating nominal contracts in the face of a real shock. In labor markets, wage negotiations can be hampered by the inability to make firm cost comparisons between similar industries in different countries. The ability of small, highly open economies such as Ireland and Finland to operate successfully under fixed rates suggests that, even though these countries faced differential shocks relative to "core Europe" (the region to which they are fixed), the mechanisms and institutions that determine prices and wages in the economy evolved toward greater flexibility in response to the change in the exchange rate regime.

A second criticism of flexible exchange rates as a buffer mechanism relates to a different type of exchange rate nonneutrality — one that operates through asset markets and that is stressed in modern accounts of the monetary transmission mechanism: changes in nominal exchange rates affect the foreign currency values of assets and liabilities. This means, for example, that Canadian assets priced in Canadian dollars become cheaper as the Canadian dollar depreciates, which then has a series of wealth effects on the economy:

- foreign firms are able to acquire Canadian firms, whose assets are priced in Canadian dollars, at bargain prices (a kind of fire-sale foreign direct investment);
- Canadian firms seeking to enter the US market face higher acquisition costs;

- to the extent that Canadian and US equity markets are integrated, Canadian firms' balance sheets deteriorate in US dollars, limiting their ability to raise new capital in US markets; and
- firms with US-dollar-denominated liabilities suffer from a deteriorating balance sheet when the exchange rate depreciates.

There are at least two implications of these observations for Canada-US exchange rate arrangements. First, one can expect that Canadian wage- and price-setting institutions would also change if the exchange rate were removed as a nominal adjustment mechanism between the two economies. In particular, commodity risks would be more usefully diversified through capital markets and other risk management tools, rather than accommodated through an aggregate adjustment in all relative prices between the two economies, which an exchange rate change induces.

Second, one must recognize that an exchange rate accommodation to an asymmetric shock, even if justified in the short run by nominal price rigidities, almost certainly carries with it other, less beneficial asset price effects that can be detrimental both to longer-run growth and to the ability of individuals and firms to make the necessary longer-run adjustments to the initial shock.

By way of summary, therefore, not only do fixed exchange rates possess important accommodating mechanisms for external shocks, but the supposed buffering qualities of flexible rates are at the same time less effective and more problematic than is typically assumed.

The Confidence Issue

One important, but inherently nonquantifiable, aspect of a internationally traded currency is the confidence that individuals (meaning workers, firms, and investors, both domestic and foreign) have in that currency. It is traditional to attribute confidence to countries that have a low inflation rate and a stable fiscal position. But confidence goes beyond that. As recent events have proven, currencies can decline precipitously even if economic fundamentals are sound on both the inflation and fiscal fronts.

Canada's current exchange rate regime has delivered low inflation but, from time to time, bouts of appreciation and depreciation. A sustained and largely unanticipated currency depreciation in a period of close to zero inflation is something that should be treated with great concern. The reason has to do with the central issue of this *Commentary*. Arguably, international markets were abandoning Canadian-dollar-denominated assets and, therefore, the Canadian dollar. More important, Canadian macro authorities' initial indifference to the fall in the dollar may have prompted Canadians to sell off assets denominated in Canadian dollars. Through this "market dollarization" process, the US dollar is embraced for a range of purposes, such as transactions and as a unit of account, and as a way to flee the uncertainty and volatility of the Canadian dollar.

The fact is that, as a small country heavily integrated with the world's largest economy, Canada does not have a lot of maneuvering room on the currency issue. And it seems apparent, from a societal vantage point, that market dollarization, as the private sector seeks greater protection from exchange rate movements, is an unfortunate outcome. Moreover, we suspect that further depreciation will give rise to both dollarization and demands by Canadians for currency integration with the United States. One way to restore confidence in the Canadian dollar would be for the currency to enjoy a period of sustained exchange rate stability, and perhaps some appreciation, together with an official acknowledgment by Ottawa that it is not indifferent to the value of the dollar.[13]

Ultimately, however, what is called for is a "hard" Canadian dollar. Practically speaking,

that means a currency that is stable against the major international reserve currency, the US dollar. Fortunately, this is also the currency that optimal currency theory dictates Canada fix against.[14]

Fixed Rates and Transaction Costs

We conclude the case for exchange rate fixity by focusing on transaction or efficiency gains. To be sure, the extent of such gains will depend on the nature of the exchange rate fix, with greater gains arising in the context of a common currency where, by definition, there is no exchange rate. While currency conversion costs are usually estimated to be small — a few tenths of a percentage point of GDP — such narrow estimates do not include the broader range of transaction costs that now exist as a consequence of the Canada-US border and the use of two currencies that fluctuate in value against each other. For example:

- Canadian firms operating in the North American market could eliminate the accounting costs that arise from using two currencies.
- Companies that currently hedge exchange rate risk would no longer find it necessary to do so, and most of the costs associated with providing exchange-rate-related derivatives would no longer be necessary.
- Menu costs associated with providing price information and invoicing in two currencies would be eliminated, which might prove particularly important to the development of electronic commerce (e-commerce) in Canada.
- Capital markets would be deeper and interest rate spreads on government and corporate debt would be reduced, thereby improving the efficiency of financial intermediation and reducing borrowing costs in Canada.
- Canadian issuers of new equity offerings would find a larger market in the absence of exchange rate risk.
- In product markets, price discrimination by national market would be less prevalent, given better price comparison information on the part of consumers.

Alternative Approaches to Exchange Rate Fixity

Assuming our argument in favor of exchange rate fixity has merit, we now turn to the question of how a more formal link between the Canadian and US dollars might be pursued. Table 2 presents a capsule summary relating to the various options.

We readily admit that there is considerable skepticism in academic and policy circles about the durability of fixed exchange rate regimes. The prevailing view, as reflected in Crow (1996) and elsewhere, is that a floating exchange rate is viable for Canada and so are the single-currency options (namely, dollarization and a NAMU), but nothing in between. From our perspective, however, this is highly problematical because the macro authorities could assert that dollarization is unacceptable and that a NAMU is unattainable, so that flexible rates become, by default, the only optimal currency arrangement. But the entire analysis in the previous section was directed to the proposition that flexible rates are far from optimal. Our view is that such a position inappropriately discards the analytical case for, and the historical experience with, fixed exchange rates. Accordingly, in what follows we attempt to resurrect the case for intermediate options and, in particular, for fixed exchange rate regimes. Readers not inclined to be persuaded by this line of analysis may prefer to go directly to the discussion of our preferred endpoint, a single-currency option.

Exchange Rate Targets

The first, and least constraining, policy option in the direction of exchange rate stability is the unilateral one of an exchange rate target. The target can be informal or formal and can be stated as either a specific parity or a band. One variant would adjust the target for underlying differences in inflation rates (crawling targets). The intermediate instruments of monetary control are short-term interest rates, which are raised or lowered in light of exchange market outcomes. The central bank might intervene in the foreign exchange markets, but only to maintain an orderly market, much as the Bank of Canada does now. Exchange rate targeting cannot eliminate short-term volatility, but it has been practiced with some success as a means of reducing misalignment. Its major advantages are that it does not require the maintenance of large foreign exchange reserves and that it allows for temporary departures from the targets in the event of unusual external circumstances.

As in the case of any exchange rate regime short of a currency union, the central bank's success hinges on its credibility and on the government's commitment to the exchange rate target. Specifically, the macro authorities must occasionally be willing to impose higher interest rates to defend the target, even if this is inconsistent with short-term inflation, growth, or employment goals. This task may be complicated by high levels of domestic or foreign debt, but the recent experience of industrial countries with strongly integrated and deep capital markets suggests that it is manageable — indeed, it may be easier with fixed rates, since flexible rates can intensify capital flows, with each movement generating an expectation of further movements in the same direction, prompting more capital flows in search of short-term gains.[15]

Exchange Rate Pegs

In his analysis of alternative exchange rate arrangements for Canada, former Bank of Canada governor John Crow notes that the mechanics of fixing the exchange rate are straightforward: "[I]n Canada, all that is needed is a government declaration that its Exchange Fund Account will intervene in unlimited amounts to defend a given exchange rate" (1996, 14). Typically, the exchange rate is allowed to fluctuate within a narrow band (plus or minus 1 percent or perhaps 2 percent) of the par value. If this is all that is contemplated, we would refer to this as a "pegged exchange rate." We agree with Crow that a "pegged regime invites attack and is demonstrably brittle under pressure" (ibid, 13). Indeed, the pressure could well come from within, since, under our definition of a pegged rate, there is no concerted effort on the part of overall macro policy to defend the peg. While pegged exchange rates can prove valuable as temporary stopgaps, this is not what we have in mind in terms of a fixed exchange rate.

Fixed Exchange Rates

Unlike a pegged rate, a full-blown fixed rate regime would perforce require as an integral component the full coordination of fiscal policy, both federal and provincial. As Courchene (1990) notes, what is involved here is a policy paradigm shift. Conducting overall macro policy is quite different under a fixed rate system than under a floating rate system. Governments with booming economies, for example, temper their booms via their fiscal stance, if maintaining the exchange rate fix required them to do so.

It is, of course, still possible that fixed rate regimes can get caught in one-way bets on international capital markets. Indeed, Crow's earlier quote to the effect that a pegged exchange rate would "invite attack" and is "de-

Table 2: ***Assessing Alternative Approaches to Exchange Rate Fixity***[a]

Option	Canadian Dollar Remains?	Seigniorage?	Bank of Canada Remains?	Exchange Rate Variability	Policy Flexibility
Fixed exchange rates	Yes	Yes	Yes	Fixed, within a narrow band	Partial, subject to gearing policy to maintaining the fixed rate
Currency board	Yes	Yes, but offset by cost of carrying foreign currency	Yes, but under currency board rules	Fixed at one-to-one[b]; no band	Less; Bank of Canada is a passive actor; government deficits can be financed only by borrowing
Common Canada-US currency	Maybe; depends on arrangements	Yes	Yes, but under the euro arrangement	None (common currency)	Depends on arrangements for Canadian input into US Federal Reserve policy
Market dollarization	Yes, but much reduced scale of use	Yes, but much less because of reduced scale of Canadian dollar use	Yes	As great or greater than now, with reduced scale of Canadian dollar use	Reduced relevance of Bank of Canada policy for Canadian households and businesses
Policy dollarization	No	No	No	None (no Canadian dollar)	Minimal, and Canada could be drawn into US policy orbit

monstrably brittle" was actually in reference to a fixed rate regime. Yet there are several fixed exchange rate success stories — Austria / Germany and Netherlands / Germany, for example. However, Crow views these as special cases:

> The Netherlands guilder, which might seem an exception since it shadows the German mark within an explicit tight band, is to all practical intents fixed, rather than adjustable. This is because successive Dutch governments have made attachment to the mark the keystone of national economic policy within the broader framework of strong support for the political goal of European Union. Austria and Belgium are close to being in the same camp as the Netherlands because of their overriding political commitment to shadowing the mark. (1996, 17, n12.)

Crow thus unveils the secret to a successful fixed rate regime — namely, that Canada's attachment to the US dollar would have to be a keystone of the country's national economic policy within the broader North American framework. Indeed, a comprehensive policy commitment to shadow the US dollar, backed up by a full understanding of what this means

Table 2 - continued

Implementation Costs	Implementation Time	Clearings	Reversible?	Access to US Capital Markets	Maintain Financial Sector Policy?
Minimal; need to select "entry point"	One to three years; need to establish credibility	Status quo plus smaller transactions costs for US clearings	Yes	Enhanced access *vis-à-vis* flexible rate status quo	Yes
Could require internal revaluation of prices and a new currency[b]	Several years, presumably preceded by fixed exchange rates[b]	More integration with US clearings systems	Yes, but, expectation must be that it will not be reversed	Larger still	Yes, but with more US banks operating in Canada
Internal revaluation of prices and a new currency	Probably a decade, as in the euro process	National clearings and then full integration into Canada-US clearings (presumably along the lines of the euro target scheme)	Yes, but only under exceptional circumstances and with large costs	Full	Yes, but may be greater harmonization over time with integration of clearing systems
Parallel currencies and a depreciating Canadian dollar; large wealth transfers from Canadian-dollar asset holders to Canadian-dollar liability holders	Variable, depends on private sector agents	Progressively integrated into US clearings systems	Unlikely, once private sector operating on US-dollar basis	High for those using the US dollar	Will likely be drawn more into US financial policies
Moderate to large depending on currency replacement procedures and revaluation of existing Canadian dollar contractual arrangements	Variable, depends on private sector agents	Progressively integrated into US clearings systems	Not without major problems (no central bank, no separate currency)	Full	Will likely be drawn more into US financial policies

[a] For all options, the Canadian price level would be tied to the US price level, and Canada would follow the US business cycle more than under the status quo.

[b] This need not be the case. If a currency board were implemented at, say, 75 US cents to the Canadian dollar, this would not require the issuing of a new currency; the implementation time would also be much reduced.

on the fiscal front and in the context of already high and increasing north-south trade integration could make a fixed Canada-US rate one of the most stable and viable such regimes anywhere. This does not mean that it could not be unsettled by unforeseen events; what it should mean is that international capital markets would come to view the Canadian dollar as fully integrated into the US dollar area and, therefore, a near-substitute for the US dollar.

While we regard a fixed rate regime as a feasible option for Canada, a number of transition issues deserve mention. First, there is the question of how one gets to a fixed rate. As the Dutch experience indicates, a country cannot go into a permanent fix without first demonstrating some commitment to more exchange rate stability. That is, the monetary authorities must first demonstrate their willingness to use monetary policy to deliver on exchange rate goals in the form of a target band for the exchange rate, rather than simply intervene in the foreign exchange rate market.

Once this credibility is established, foreign exchange speculation would become stabilizing and interest rates between the two coun-

tries should tend to converge. Over time, the exchange target band could be narrowed, and the need for central bank intervention would diminish — this is the shadow policy to which Crow refers. In short, credibility has to be earned and, therefore, it would be unwise to move suddenly to a fixed exchange rate. How long would such a transition take? No one can know for sure, but it took the Netherlands about three years from its initial shift to fixed rates before it achieved interest rate convergence with Germany.

The second issue relates to Quebec. If there is one event that could undo an otherwise successful fix it would surely be the anticipation by markets of a Quebec separation: the massive resulting uncertainty would very likely lead to an immediate loss of substantial foreign exchange reserves under a fixed rate regime.[16] Quebec independence would create enormous problems for any exchange rate regime and, indeed, would force a rethinking of currency arrangements in the upper half of North America. Thus, moving to a fixed exchange rate regime in the context of substantial domestic political uncertainty is probably a nonstarter.

This caveat aside, we believe fixed exchange rates are preferable to the flexible rate status quo. And, over the longer term, the establishment of a NAMU, which may be the most attractive option of all, would require some interim variant of a fixed exchange rate regime.

Currency Boards

Currency boards, which back domestic currency issue with identical values of foreign currency, provide institutional cement for a fixed exchange rate regime. The conversion rate is fixed precisely and the currency board stands ready to buy and sell at this dedicated rate. In effect, there is no scope for domestic monetary policy since there is no central bank as such. In addition, under a currency board regime, there is no lender of last resort — although, in Hong Kong, which has a currency board, the fact that reserves were well in excess of 100 percent did allow some flexibility; see Williamson 1997, 7–8).

Currency boards have attracted a lot of attention, especially in light of Hong Kong's successful defense of its currency during the Asia crisis and Argentina's holding of its currency value in the wake of both the Mexican peso crisis and, more recently, the 40 percent devaluation of Brazil's currency. Currency boards have also proven useful for emerging market economies with fiscal credibility problems and a history of inflationary finance. Hanke and Schuler (1993, 20) canvass the pros and cons of currency boards and conclude that "for the Americas, the currency-board system offers a means to establish sound money in a region" and facilitates "the region's natural tendency to evolve toward a common currency area."

Whether or not a currency board is a relevant option for Canada, it serves as a useful benchmark. If Argentina, with its continuing fiscal problems, can hold its one-to-one peso / dollar exchange rate in the face of repeated crises involving other Latin American currencies in recent years, surely Canada's macro authorities could maintain international credibility under an exchange rate fix to the US dollar.

Dollarization

In line with our assumption that there will be further currency integration in the Americas, in this section we focus briefly on the implications of Canada's formally adopting the US dollar as its currency. As a prelude, however, we address the likely implications of "market dollarization" — namely, a scenario in which private sector agents increasingly conduct their affairs in US dollars.[17] Such behavior could be triggered by a variety of causes; for

example, the US dollar could become the currency of choice in e-commerce, or high-level management in Canadian corporations could increasingly insist on being remunerated according to US pay scales, or the rest of the Americas could move toward dollarization, leaving Canada with little choice but to follow suit. The second-to-last row of Table 2 summarizes the implications of market dollarization.

While market dollarization would leave intact the existing monetary institutional framework, Canadian monetary policy influence would be considerably diminished because of the reduced range of Canadian dollar activity. Generating a given monetary policy outcome would then require larger changes in interest rates and exchange rates. But this would be problematic because volatility in Canadian public policy parameters would surely trigger further market dollarization.

Thus, it seems likely that such a scenario would lead to exchange rate fixity. Although that situation ultimately might be unstable, the longer-term equilibrium need not be "policy dollarization" — it could also lead to fixed exchange rates or a currency board arrangement. The general point is that market dollarization would tend to be self-reinforcing and to lead to unpredictable political dynamics, with the Canadian monetray authorities placed in an increasingly defensive position.

Policy dollarization is, in a sense, the ultimate fix: Canada would simply abandon the Canadian dollar and adopt the US dollar as legal tender. This would generate the full range of transactions and efficiency gains alluded to earlier. It would also address the challenges arising from exchange rate variability since there would no longer be a Canada-US exchange rate. Dollarization would certainly grease the wheels of North American commerce and integration.

But dollarization would do much more than this. As the last row of Table 2 indicates, not only would the Bank of Canada become redundant and disappear, but Canada's financial institutional and regulatory system would be drawn inexorably under US influence and design. Indeed, it is likely that banking and finance would become integrated north-south along the lines of Canada's crossborder regional economies. In turn, this would likely begin to impinge on Canadian policymaking across a wide range of fronts extending well beyond the monetary and financial sector. So, although dollarization would solve the exchange rate problem, it would create a potentially more serious set of challenges, eventually extending to sovereignty issues.

Policy dollarization is presumably a nonstarter, except as a last resort. But, as noted earlier, market dollarization is already alive and well and, arguably, on the increase. Indeed, market dollarization has "slippery slope" characteristics: the more extensive it becomes, the more volatile is the exchange rate and the less effective is Canadian monetary policy.

One could argue, of course, that a degree of dollarization has long been characteristic of the Canadian economy and something that Canada has been able to accommodate. According to this view, further shifts toward dollarization (for example, the use of US-dollar-denominated credit cards for e-commerce) presumably would represent changes only in degree, not in the substance of dollarization. We are not so sure that this is the case, however, and it will be interesting to keep a close eye on developments in Europe — particularly in Switzerland, where market euroization is taking place even though that country (unlike Britain) does not have the politically viable option of joining the common currency area..

In any event, in terms of our analysis, two general observations are warranted. First, it would be a major mistake on the part of Canada's monetary authorities to assign a zero probability to a dollarization scenario. Second, assuming that further currency integration in North America is likely, there is a much prefer-

able alternative to policy dollarization — namely, a NAMU, to which we now turn.

A Common Currency

The key distinguishing feature of a NAMU is that, unlike the other options discussed so far, Canada cannot opt for it unilaterally — the United States obviously would have to participate fully in any such arrangement. But does a NAMU hold any interest for Canada in the first place?

The easiest way to broach the notion of a NAMU is to view it as the North American equivalent of the European Monetary Union (EMU) and, by extension, the euro. This would mean a supranational central bank with a board of directors drawn in part from the central banks of the participating nations. Whether Canada would be content to participate on the basis of, say, a one-thirteenth role (its share in the combined Canadian-US GDP) on this board of directors is beyond our ability to assess. If the mandate of this North American central bank were framed largely in terms of pursuing price stability, the actual voting share might matter less.

Since the US dollar is already the world's premier reserve currency, there is no question that a NAMU currency would bear the same name; indeed, the United States would insist that its dollar continue to exist. The euro's advent has shown, however, that the continued existence of the US dollar would not be inconsistent with parallel and perfectly substitutable national currencies — until the eleventh hour, the design of euro coins and paper was to have been identical on one side in all EU countries, but the other side could have been emblazoned with country-specific symbolism (as will still be the case for 1 and 2 euro coins). Hence, the Canadian component of the common NAMU currency could embody national symbolism.

The Bank of Canada would still have a role to play in the larger NAMU institutional structure, but it would be roughly similar to, say, the Bank of France's role within the new European Central Banks structure. As Table 2 indicates, Canada would maintain its own financial institution regulatory system, its own clearing system, and so on. The critical difference is that there would no longer be a Canada-US exchange rate.

Should Canadians be in favor of a NAMU? Or, more properly, since further currency integration in the NAFTA is likely, should Canadians prefer a common North American currency to dollarization? To us, the answer is clear, and positive.

Transition to a NAMU

Many difficult issues would have to be dealt with in the transition to a NAMU. One of the most important would be the pace of the transition. The European Monetary System (EMS), for example, operated from 1979 until last year. It was a complex and formal set of arrangements that, with one major exception, reduced nominal exchange rate volatility among the countries involved, and may have done the same with respect to real exchange rates. The relative success of the EMS certainly conditioned the ultimate decision to go ahead with the EMU. It is an open question whether a NAMU could emerge without the experience of something initially less than full monetary union, but involving cooperation between the countries involved.

Another transition issue for Canada would be the appropriate conversion rate. One could, of course, opt for the existing exchange rate of about 69 US cents for a Canadian dollar, which would set in motion a process of adjustment that would make 69 US cents an equilibrium rate. But what if this rate were inappropriately low? Within a currency union, the problem of choosing an appropriate entry parity becomes

a multilateral regional problem. Canada, and any other country that chose to enter the NAMU, would have to arrive at some jointly determined criteria by which entry points are chosen.

One approach, modeled in part on the European convergence, would be for Canada to use the transition to a NAMU to gear down its debt-to-GDP ratio to that of the United States, so that there would be comparable fiscal flexibility. From the perspective of a FEER approach to exchange rate equilibrium, this implies that the equilibrium entry point would rise as Canada made progress on the debt-to-GDP-ratio front. In any event, European experience suggests that, provided inflation is low and the transition period has been sufficiently lengthy, the entry-point problem should be minimal.

Other transition issues would also have to be addressed, although space does not permit us to do so here. They would, however, include the types of cooperative arrangements that would be necessary as NAMU members groped toward the ultimate union, and the criteria, if any, that would be imposed on those joining with respect to macro indicators such as inflation rates and debt levels.

What's in a NAMU for the United States?

It is frequently asserted that, since there is apparently nothing in a NAMU for the United States, the whole concept is a nonstarter. But the same might have been said about the possibility of Canada-US free trade. Fortunately, Canadian economists had done their homework, and Canada was ready when the opportunity presented itself. The same approach is now called for on the currency-unification front.

In any case, it is not all that evident that the United States would oppose a NAMU initiative. The successful launch of the euro has created challenges for the United States, which suddenly finds that it no longer has a monopoly on the global reserve currency. The euro's effective currency area has already spread beyond the 11 participating EU members, and many former communist countries of central and eastern Europe are likely to link their currencies to it. Moreover, euroization may well spread in the private sector in Britain even if that country does not formally join the club. Thus, the euro, as it takes on an ever more important role in international portfolios, will become a serious rival to the US dollar as the global reserve currency. Henceforth, the United States will find it increasingly difficult to finance its balance of payments deficits. In response, the Americans may well wish to expand the reach of the dollar area.

Another reason for potential US interest in a NAMU is that the endless currency instability in the Americas, often involving US bailouts, cannot be in its best economic interests. And the case for ensuring currency stability in, say, Mexico is not unlike the geopolitical reality that led to the United States' supporting the NAFTA initiative.

Sovereignty and Symbolism

That a NAMU would mean the end of sovereignty in Canadian monetary policy is clear. Most obviously, it would mean abandoning a made-in-Canada inflation rate for a US or NAMU inflation rate. But what are the implications of exchange rate fixity on the broader economic or cultural sovereignty front? Can Canadians remain socio-economically distinct in the face of a common North American currency? We do not claim to know the full answers to these critical questions. We can, however, offer some observations drawn from Canada's social and economic history.

First, Canada embarked on the development of a much more generous interregional and interpersonal transfer system or social

contract than that of the United States even as its trade became increasingly integrated into the broader North American economy.

Second, in the post-FTA, post-NAFTA era, it is true that a further intensification of north-south integration has coincided with an unwinding of key aspects of Canada's social envelope. Our view, however, is that the proximate cause of this was not enhanced integration, but measures introduced (largely in the 1995 federal budget) to bring Canada's fiscal house under control. Now that Canadian governments are entering a period in which surpluses, rather than deficits, may become the norm, some of these social program cuts may be restored. Indeed, with the recent social union framework agreement and the 1999 federal budget, most of the earlier cuts to the Canada Health and Social Transfer have already been restored and the path cleared for future fiscal expansion.

Third, it is nonetheless the case that the NAFTA, globalization, and the information revolution are having an impact on Canada's sovereignty and policy maneuverability. But these challenges need not influence the goals Canadians set for themselves. True, they will influence the choice of instruments Canadians use to achieve those goals, but this constraint on instrument choice applies to all nations. Indeed, our entire analysis is, in a sense, an exercise in instrument choice: a fixed exchange rate regime rate simply may now be a more appropriate instrument than a flexible rate.

The fourth point relates more directly to the exchange rate fixity issue. Many of the social programs that Canadians hold near and dear are a product of the Pearson era of the 1960s, a period in which Canada had a fixed exchange rate with the United States. Quite obviously, the Pearson government did not view a fixed exchange rate as an impediment to asserting Canada's identity in terms of a comprehensive social policy infrastructure. It may now be time to make the opposite case: with currency issues out of the way, as it were, the policy agenda would then be free to focus on the issues that really matter in further fostering a distinctly Canadian identity in the twenty-first century.

Fifth, although it is often claimed that political unity is underpinning the euro, this has yet to be proven. We do not believe for a moment that the French view the birth of the euro as a threat to their national identity or sovereignty. The reality is that currency arrangements are one of those policy areas that, following the dictates of subsidiarity, might involve improved social welfare if passed upward to the supranational level. It will be interesting to watch developments in Britain, where prices are already being quoted in euros as well as pounds; our guess is that British citizens and businesses alike will hold more and more euro accounts in British banks. The fact is that currency arrangements are increasingly becoming a supranational public good. This means that the overall costs of remaining outside these supranational currency arrangements will increasingly dominate the benefits of maintaining an independent currency regime.

This brings us to the sixth point, which relates Canadian sovereignty to the country's bargaining position with respect to the United States. If either policy or market dollarization proceed apace in the rest of the Americas without Canadian influence, Canada's negotiating stance will be permanently weakened. This bears on practical matters, such as the degree of representation outside parties might hope to achieve *vis-à-vis* the US Federal Reserve. If a pan-American currency area were to develop without Canada's participation, the United States would derive fewer marginal benefits from adding Canada to the arrangement and be less inclined to trade influence (or seigniorage) in exchange for Canada's later accession. This militates for speedy Canadian action in enunciating a coherent policy stance on multilateral currency arrangements.

Conclusion

Our aim in this paper was threefold: to argue that Canada's floating and volatile currency is not serving the country's economic interests well; to make the case that a progressively integrated North America requires exchange rate fixity; and to propose that Canada pursue greater fixity with a view to ultimately establishing a North American currency union.

Even though the lead time for actually implementing a NAMU would likely be more than a decade, the march of events elsewhere in the Americas is such that a degree of urgency attaches to this issue. Argentina's President Carlos Menem recently proposed that his country move from its currency board arrangement to full dollarization. More important, in January 1999, the head of the Mexican bankers' association called for the spread of the US dollar area to Mexico. And in March 1999, Mexico's most influential business lobby group called for full dollarization of the Mexican economy.

Intriguingly, US economist Robert Barro (1999) suggests that the United States could (and should) find creative ways to support these dollarization initiatives. Barro suggests, for example, that the US Federal Reserve give the Argentine central bank a one-time allotment of $16 billion in newly issued US currency, in exchange for $16 billion worth of non-interest-bearing pesos (the peso and the US dollar already exchange on a one-to-one basis) that the Fed would hold as collateral. This would provide Argentina with the required amount of US currency to embark on full dollarization, and the transfer would cost nothing (except paper and ink); over the longer term, the United States would garner the seigniorage arising from an expanding supply of US dollars in Argentina.

Barro further notes that, although dollarization would remove the lender-of-last-resort facility of other countries' central banks, the United States could simply take over as lender of last resort for its dollar-zone clients. Barro even suggests that the United States take the lead in promoting this monetary integration.

To be sure, the US government does not necessarily share Barro's views. But discussion of dollarization is still at an early stage in the United States, and it is possible that growing awareness of its advantages for that country will persuade US officials to explore ways of making some central banking services available to countries adopting the US dollar.

Our concern with all of this is the emphasis on dollarization, rather than on a NAMU. What

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are the prospects for a NAMU if Mexico, let alone the rest of central and South America, were fully dollarized? Would the United States simply take the view that Canada could follow the rest of the Americas and use the US dollar, with the Americans pocketing the resulting seigniorage? If Canada wants to keep the NAMU option alive, it must become a party to these discussions and any resulting deliberations. Canada's involvement should include not just academics but, more important, key business associations. It would be most unfortunate if, having finally realized the virtues of a NAMU, Canadians were to discover that this avenue was no longer open because dollarization had already spread to the rest of the Americas.

In summary, we have argued that exchange rate stability relative to the US dollar is important in sustaining and enhancing Canada's long-term economic potential. The current flexible exchange rate regime, while necessary if Canada wants to pursue a different inflation rate than the United States, is increasingly at odds with both the economic stability and economic integration that are vital to sustaining Canadians' living standards in a competitive global economy.

The cost of monetary independence is becoming increasingly apparent as Canada shifts into human-capital-led growth and deeper economic integration with the rest of North America. The policy implications of this shift are profound and in many ways parallel the signal from the introduction of the euro. Formal monetary integration in North America is an idea whose time may well be nigh; it is worth thinking seriously as to how it might come to fruition.

The transition to a single North American currency will be slow in coming and will appropriately entail a great deal of research, debate, and negotiation. In the interim, however, we believe there is a more immediate need for exchange rate stability between the Canadian and US dollars, even if unilateral action were the only course open. A rethinking of Canada's options on this account is long overdue.

Notes

We wish to acknowledge Ted Carmichael, John Crow, John Murray, Finn Poschmann, Bill Robson, and Daniel Schwanen for providing valuable comments on an earlier draft. Since not all of the above agree with the thrust of our analysis, it is more important than usual to attribute what follows solely to the authors.

1 In commenting on an earlier draft of this paper, Ted Carmichael suggested that we distinguish between "market dollarization" and "policy dollarization." The former, as described in the text, relates to the move by private sector agents to adopt the US dollar for a range of purposes, while the latter refers to an official decision by the policy authorities to proclaim the dollar as legal tender. The reference to "market euroization" is to be interpreted in this light.

2 See, however, Courchene (forthcoming), who extends the analysis to incorporate aspects of the Bank of Canada's conduct of monetary policy.

3 In fixed versus flexible regimes, there is a whole set of issues having to do with small, inflation-prone countries that attempt to achieve "credibility" on the inflation front by fixing their currency to that of a large country with a low inflation rate. This argument does not have much relevance in the Canadian-US case.

4 The real exchange rate is the nominal exchange rate corrected for differences in the price levels of two economies. From a macroeconomic perspective, the real exchange rate is one of the two key relative prices in the economy, the other being the real interest rate. Fortin (1996) and others argue that, for much of the

1990s, real interest rates have also been misaligned as a result of Canada's attempt to run an inflation target lower than that of the US Federal Reserve.

5 Economists have long used a balloon analogy in talking about exchange rate volatility: if one removes the volatility from the exchange rate, it just appears elsewhere in the economy. Flood and Rose (1998) present evidence that this analogy is inappropriate.

6 From the point of view of a system change, one can argue that abandonment of the Bretton Woods fixed exchange rate system led to a loss of fiscal discipline (see McKinnon 1997). There is substantial evidence, however, that some smaller countries on fixed rates — for example, Belgium and the Netherlands — also had serious fiscal discipline problems in the 1980s.

7 Note that this 40 percent overshoot measures the *actual* deterioration in unit labor costs (in a common currency) over this period. Measured from a PPP benchmark, the overshoot would be less since the exchange rate was, initially, below PPP.

8 Readers will note, as did a referee on a earlier draft, that we are trying to have it both ways as it were: overvaluation generates costs, but so does undervaluation. Are these costs reversible? Some probably are, but many are not. In short, volatility generates irreversibilities! Firms that choose to exit in a period of overvaluation and human capital that leaves in a period of undervaluation are not likely to reverse their decisions quickly, if at all, as the exchange rate returns to equilibrium.

9 Grubel (forthcoming) comes at this comparative advantage issue from a different angle. He notes that allowing the dollar to mirror commodity prices "has retarded the move of labor and capital out of commodity producing and into high-tech industries because it signaled the wrong price trends to producers," with the result being a tilting of resource allocation in perverse directions.

10 More recent data (Grady and Macmillan 1998) suggest that, from 1989 to 1997, interprovincial exports slid from 22.7 percent to 19.7 percent of GDP. At the same time, international exports grew from 26.1 percent to 40.2 percent of GDP.

11 Mundell (1990) argues that east-west shocks dominate north-south shocks, which, among other issues, leads him to favor Canada-US exchange rate fixity.

12 Moreover, their "Canada East" region includes the Atlantic provinces, which tends to blur some of the north-south results.

13 Ironically, many of the Bank of Canada's arguments in favor of the importance of low inflation were based on the idea that maintaining confidence in the value of money was an important policy objective. The Bank had the objective right — it just got the instrument wrong.

14 For a country with a wide portfolio of trade partners, such as New Zealand, the confidence argument could justify pegging against a basket of major currencies.

15 A useful example of a country that currently uses exchange rate targeting is Norway, which officially adopted a policy of targeting the exchange rate between the krone and the deutschmark (it now targets the euro). The country has had relative exchange rate stability since then, although discussions of external versus domestic objectives continue. Norway is a constructive example for Canada because, as a major oil exporter, it experiences shifts in oil prices that constitute a major asymmetric supply shock relative to the euro zone (Nicolaisen and Quigstad 1998).

16 Readers wishing more detail on the potential financial and exchange rate implications of a political breakup can consult Laidler and Robson (1998) or Courchene and Laberge (forthcoming).

17 We are indebted to Bill Robson for his suggestion that we expand the discussion of dollarization to include market dollarization.

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