THREE MYTHS ABOUT CANADA'S FLEXIBLE EXCHANGE RATE

Christopher Ragan

The dramatic changes that have been observed in the Canada-US exchange rate over the past 25 years have led many people to argue that something needs to be done to reduce this apparent volatility. This paper examines three popular views about Canada's flexible exchange rate. First, that a fixed exchange rate would reduce overall economic volatility. Second, that a fixed exchange rate would be a useful way to prevent currency "misalignments." Finally, that the Bank of Canada should always reduce its short-term interest rate target to offset the effects of an appreciation of the Canadian dollar. In each case, there is a superficial logic to the position, but a deeper economic understanding, in particular regarding the underlying causes of exchange rate changes, reveals all three views to be incorrect.

Les fluctuations spectaculaires du taux de change Canada-États-Unis des 25 dernières années ont incité de nombreux observateurs à préconiser des mesures susceptibles d'atténuer cette apparente volatilité. L'auteur analyse trois points de vue très répandus sur la flexibilité du taux de change canadien. Selon le premier, un taux fixe réduirait globalement l'instabilité économique. Les tenants du deuxième estiment qu'un taux fixe préviendrait la « distorsion » des devises. Certains soutiennent enfin que la Banque du Canada devrait toujours réduire son taux d'intérêt cible à court terme pour compenser les effets de la revalorisation du huard. Or, chacun de ces points de vue repose sur une logique superficielle, affirme l'auteur. Une compréhension plus poussée de l'économie, et surtout des causes sous-jacentes des variations du taux de change, révélerait en effet leur inexactitude.



I t always seems to be the right time to debate Canada's flexible exchange rate. As figure 1 shows, the Canadian-US dollar exchange rate has fluctuated a great deal over the past quarter-century, and there has been no shortage of people who argue that these fluctuations represent a real problem for the Canadian economy. (The exchange rate in figure 1 is the annual average of the Canadian-dollar price of the US dollar, so a rise in the exchange rate is a depreciation of the Canadian dollar.)

In the late 1980s and early 1990s, many Canadians worried about the dollar's 20 percent appreciation against the US dollar. By 2001, after the onset of the Asian crisis, other Canadians worried about the problems of a weak Canadian dollar, which by then had depreciated to an all-time low. But over the past six years, with the dramatic 60 percent appreciation, the arguments from the late 1980s have re-emerged.

During each of these episodes, debate has raged over what should be done about an excessively flexible exchange rate. Some people have argued that Canada needs to fix the value of its currency in order to reduce economic volatility. Often implicit in this argument is the idea that currency "misalignments" are a serious problem, and that a fixed exchange rate is the obvious solution. Arguments have also been heard regarding how the Bank of Canada should respond to exchange rate changes, and simple rules of thumb have been offered — such as that the Bank of Canada should reduce its policy interest rate whenever the Canadian dollar appreciates.

Each of these arguments has considerable surface appeal, but each is also wrong. This paper examines three popular myths about Canada's flexible exchange rate with the goal of clarifying these important issues.

Myth number 1: *Economic volatility would be reduced by fixing the exchange rate.* At first blush, it seems rather obvious that by fixing the external value of the Canadian dollar we could reduce the amount of economic volatility. After all, for those people engaged in the buying or selling of goods or assets across international boundaries, exchange rate volatility is a problem because it creates risk and uncertainty. And so by fixing the exchange rate we could eliminate an important

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part of the economic volatility these people face on a daily basis.

The problem with this view is that it misses an important part of the bigger picture. In particular, it fails to recognize that in an open economy like Canada's, with billions of dollars worth of goods and services and assets being traded every day, changes in Canada's exchange rate don't just hapW hen any one or more of these economic "shocks" occur, the Canadian economy will be forced to adjust. If the Canadian exchange rate is flexible — meaning that its value is freely determined by demand and supply conditions in the foreign exchange market — some of the adjustment will fall on the exchange rate itself. There will also be some adjustment in

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pen out of the blue. On the contrary, they are caused by real-world events that would occur no matter what kind of exchange rate — fixed or flexible — Canada chooses to have.

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Second, changes in the demand for Canadian real and financial assets also lead to changes in the Canadian exchange rate. If global investors perceive shares of Canadian firms to be a better investment, or Canadian government bonds to be less risky, their greater demand for these assets will lead to an appreciation of the Canadian dollar. Finally, changes in monetary or fiscal policy in Canada can also lead to changes in the exchange rate, mostly through the effect that policy-induced changes in short-term interest rates or income tax rates have on global investors' demands for Canadian assets.

Canadian production, income and employment. If the Canadian exchange rate is instead held fixed, the necessary economic adjustment will still occur. But the inability of the exchange rate to move will force *more* adjustment in the other variables. The result will be more, not less, aggregate economic volatility.

To illustrate this idea, consider two events in recent Canadian economic history: the Asian crisis in 1997-98 and the global commodity boom in 2002-06. These two events show clearly how Canada's flexible exchange rate helped to *reduce* overall economic volatility from what would have been observed if Canada had instead operated under a fixed exchange rate. This is the oftenheard idea that flexible exchange rates act as a "shock absorber."

In the summer of 1997, the onset of the Asian crisis led to large declines in the national incomes of Thailand, Indonesia,

> Malaysia and South Korea. These economies are large users of raw materials, and when their recessions took hold there was a large reduction in the global demand for commodities. Over the next 12 months, world commodity prices fell by roughly 30 percent. As a large producer and exporter of these raw

materials, Canada was clearly harmed by this reduction in prices. Particularly hard hit, not surprisingly, were those sectors and regions heavily oriented toward producing raw materials. The decline in global demand for commodities also led to a decline in demand for the Canadian dollar, which promptly depreciated from US72 cents in 1997 to US65 cents a year later. As a result of this currency depreciation, Canadian producers and exporters of manufactured goods, mostly located in central Canada, experienced a





significant boost to their business; the cheaper Canadian dollar meant that foreign purchasers were more likely to buy from Canada than from other countries. In the face of the Asian crisis, the Canadian economy was therefore confronted with offsetting pressures. The commodity-producing sectors and regions experienced a decline in economic activity, but the central Canadian manufacturing sector, aided by the weaker Canadian dollar, experienced a boom.

N ow consider what would have happened if Canada had instead had a fixed exchange rate in 1997. The Asian crisis would still have happened, as would the decline in the global demand for commodities. As a result, there would still have been the 30 percent decline in the world prices of raw materials, and thus the commodity-producing sectors and regions of Canada would still have faced economic decline. In other words, the negative part of the story for Canada would have been no different had we operated a fixed exchange rate. The difference, of course, would have been that the Canadian dollar would not have been free to depreciate by

10 percent, and thus the central Canadian manufacturing sector would have not received the boost that it actually did.

In terms of *aggregate* income and employment, Canada's economy would have been less stable with a fixed exchange rate. The flexible exchange rate that Canada actually had in 1997 helped to stabilize Canadian aggregate income and employment, because it absorbed some of the shock of the Asian crisis.

Now consider the events that took place a few years later. Between 2002 and 2006, a booming world economy led to growing demand for commodities and thus a rapid rise in their prices. The average price of the commodities produced and exported by Canada increased by over 90 percent during this period, and the price of energy products increased even faster than the average. This growing demand for Canadian raw materials naturally led to a boom in Canada's resource sector, especially notable in the oil-producing regions of the West and Atlantic provinces. The rise in commodity prices was also a key factor in the appreciation of the Canadian dollar, which increased from a low of US62 cents in 2002 to over US90 cents in 2006. But as the Canadian dollar appreciated so dramatically, the central Canadian manufacturers saw their foreign markets shrink and their profit margins fall. Once

As the Canadian dollar appreciated so dramatically, central Canadian manufacturers saw their foreign markets shrink and their profit margins fall. Once again the Canadian economy was confronted by offsetting pressures, but this time the dynamics were opposite to those following the Asian crisis: the resource sectors and regions experienced the boom while the manufacturing sector, harmed by the rising dollar, experienced the decline.

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> I f Canada had instead had a fixed exchange rate during this period, the external events would still have happened as they did, but their effect on the Canadian economy would have been quite different. The booming world economy would still have driven commodity prices upward, and the boom in Canada's resource sector would still have occurred. Without the appreciation of the Canadian dollar, there would have been no force acting

to slow down the manufacturing sector. The result would have been an aggregate Canadian economy with even faster growth in aggregate income and employment than we actually experienced during this period. This may sound all to the positive, until it is recognized that even with the appreciation that we observed, the Canadian economy was operating roughly 1 percent above its productive capacity by early 2007; without the appreciation and the slowdown in the manufacturing sector, this "output gap" would have been even larger, with an associated increase in the already considerable

inflationary pressures.

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T his second Canadian example illustrates perfectly a problem known to economists as the "Dutch disease," the phenomenon first observed after the discovery of

natural gas in the Netherlands in the late 1950s. A rise in the price of natural resource products first leads to an appreciation of an exporting country's currency. And then, because of that currency appreciation, the same country experiences a weakening in its sectors exporting other products. Through the appreciation of the currency, the success in the natural resource sector "crowds out" activity in other exporting sectors.

It is surely unpleasant to be either a firm or a worker in one of those sectors that are getting "crowded out" following a currency appreciation. Firms will reduce output and some may close down altogether. Profits will fall. Workers will receive fewer hours and some will be laid off. None of this is pleasant at the level of the individual

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worker or firm. But the Dutch Disease — which is just a more dramatic name for the shock absorber referred to above — is a vital part of the macroeconomic adjustment process that helps, through changes in the exchange rate, to stabilize aggregate income and employment.

In the face of positive external shocks like the ones we have been discussing, a fixed exchange rate would help to reduce the impact of the Dutch disease. It is not at all surprising that since 2002 it is the central Canadian manufacturers who have complained the loudest about Canada's appreciating currency. But reducing the Dutch disease does not mean having a healthier overall economy. The result of fixing the exchange rate would have been an aggregate economy producing well above its productive capacity and inflationary pressures to match.

This is precisely what we observe now in the oil-exporting Gulf States, which peg their currencies to the US dollar. Their fixed exchange rate may have prevented the Dutch disease, but

they now have super charged economies with inflation ranging between 4 percent and 12 percent annually.

The bottom line is that the Canadian economy will always be subject to shocks, some from outside and some created internally. When these shocks occur, some adjustment is necessary. But we have a choice

regarding the nature of this adjustment. We can choose to fix the exchange rate, thus forcing all of the adjustment onto domestic income, employment and inflation. Or we can choose to let the exchange rate absorb some of the shock, thus helping to stabilize aggregate income, employment and inflation. For greater stability in the aggregate economy, flexible exchange rates are the better option.

Myth number 2: *Canada needs a fixed exchange rate to prevent currency misalignments.* One often sees in the business press the concept of a currency "misalignment," where the user of the term argues that the Canadian dollar is either "overvalued" or "undervalued." The same person typically argues that by fixing the exchange rate, these misalignments can be avoided. Like the first myth, this idea has surface appeal. After all, if such misalignments are known to exist, it seems simple to avoid them by fixing the exchange rate at the appropriate level. The problem is that the terms in quotation marks above either are used in a quite imprecise way or are quite precisely grounded in an idea with little or no theoretical or empirical support.

When the value of the Canadian exchange rate is determined through the buying and selling actions of millions of individual traders in the foreign exchange market, it makes little sense ever to think of the exchange rate as being at the "wrong" level. On the contrary, whatever events or expectations are leading the buyers and sellers in that market to make their transactions, one can sensibly conclude that the exchange rate is at the "right" value

Sometimes the terms "overvaluation" and "undervaluation" are used in a sloppy but mostly harmless manner. For example, if the Canadian dollar is today trading at US95 cents cents but for some good reason is expected to depreciate to US90 cents cents over the coming months, one might say that the Canadian dollar is "overvalued" by 5 cents. This is a sloppy way to use the word because it confuses the questionable idea of a currency "misalignment" with the perfectly sound idea that currencies often move more in the short run than they do in the long run. This second idea, usually referred to as exchange rate overshooting, was first made famous in the mid-1970s by the late Rudiger Dornbusch from MIT, who used the idea to explain why exchange rates appeared to be more volatile than their underlying economic determinants.

M ore often, however, people who speak of "over-" or "undervaluation" actually believe that the current market-determined value of the exchange rate is "wrong." Note how

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> every day — "right" in the sense that the foreign exchange market is equilibrating the forces of demand and supply. This in no way suggests that the "right" value of the exchange rate will be constant. As economic events and expectations change on a daily basis, so too will the exchange rate that clears the foreign exchange market.

> If the flexible, market-determined Canadian exchange rate is always at its "right" value, then what do people mean when they speak of currency "misalignments"?

unusual a claim this is; indeed, in any other context it would be viewed as simply silly. Would anyone ever claim that the world price of oil is not "right"? They may well claim that the current high price will not last for long, or perhaps that it will soon move even higher. But they wouldn't say that the current price is "wrong" in any meaningful sense. How about the price of orange juice or newsprint or computer RAM chips or fibre optic cable? Do we ever think their market prices are "wrong"? The answer is no, and for the very good reason that in each case the market forces of demand and supply are determining their prices. But then why would it ever seem sensible to claim that a market-determined exchange rate is "misaligned"?

P eople who talk about currency misalignments invariably have the theory of purchasing power parity (PPP) in their minds. This theory begins with a very sensible idea and then applies it in an entirely inappropriate way. The result is a central prediction which makes little

$$P^C = eP^{US}$$

The problem is that this equation does not come close to holding in reality. To see this, we can compare the actual exchange rate, e, to the exchange rate that would be observed if the equation above held. That is, define the PPP exchange rate to be:

 $e^{PPP} \equiv P^C/P^{US}$

Now we need only compare the actual path of *e* with the easily computed path of e^{PPP} . If the two paths are similar, then the theory of PPP receives

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sense and which, not surprisingly, has little or no empirical support.

Economists speak almost with reverence of the law of one price, the idea that the difference in prices between one product in New York and the identical product in London cannot exceed the cost required to transport the product between the two cities. If the price difference exceeded the transportation costs, profits could easily be made by buying in the low-price location and selling in the high-price location. But this very act of arbitrage, by adjusting demands and supplies in each location, would then quickly bring the prices back together.

The law of one price is very sensible. The problem comes when the same logic is applied to national price indexes which comprise thousands of products. To clarify the issue, let's introduce some very simple notation. Let *e* be the the number of Canadian dollars required to purchase one US dollar. Further, let P^{C} be the Canadian price index (such as the GDP deflator) and P^{US} be the similar price index in the United States. The theory of purchasing power parity holds that the exchange rate should equalize the Canadian-dollar value of the two price indices:

considerable support; if, in contrast, the two paths are quite different, then there is little evidence for the theory.

Figure 2 shows these exchange rates over the past 25 years. The PPP exchange rate is just the ratio of the two national price indices, and because the two countries have similar inflation histories this hypothetical exchange rate doesn't show much variation. In contrast, the actual Canadian-US exchange rate is far more volatile and remains far away from the PPP exchange rate for extended periods of time. This lack of empirical support for PPP is not surprising, however, given that there are very sensible reasons to expect PPP *not* to hold. As it turns out, the compelling logic of the law of one price disappears when it is applied to national price indexes.

Three main reasons account for the failure of PPP. First, many of the prod-

ucts in any national price index are goods or services that cannot be traded internationally. For these products, there is no simple international arbitrage that would equate their prices across countries. Second, countries have different consumption and production

baskets that are used to construct their national price indices, and with different baskets all that is necessary to break the hypothesized PPP equality is movements in *relative prices*. For example, the prices of forest products may, through arbitrage, be equated between Canada and the United States, but if these products are a larger share of Canadian production than US production (as they





Sources: Canadian CPI — Bank of Canada, series PCPISA; United States CPI — US Bureau of Labor Statistics; exchange rate: Statistics Canada, CANSIM series V37432.

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are), then any increase in the relative price of forest products will lead to a deviation of the actual exchange rate from the PPP exchange rate. This is precisely why increases in world commodity prices lead to an appreciation of the Canadian dollar (even though they have much less effect on the PPP exchange rate).

Finally, note that the arbitragebased logic of the law of one price applies to the market for goods and ciation by lowering its target for the overnight interest rate. The logic for this argument is straightforward: the rise in the dollar reduces the foreign demand for Canadian exports of all kinds, and thus will eventually lead to a reduction in economic activity. The Bank of Canada, interested in maintaining aggregate output close to capacity as a means of stabilizing inflation, should therefore reduce its policy interest rate. Such an action would stimulate aggre-

The bottom line is that the theory of purchasing power parity has serious shortcomings and provides no solid basis for viewing the current exchange rate as "misaligned." The current value of the exchange rate, determined as it is in the foreign exchange market, represents the "right" value in the sense that it is equilibrating demand and supply. As these forces change, so too will the market-determined exchange rate.

services. Yet an important part of the action in the foreign exchange market is played by global investors who are purchasing and selling real and financial assets denominated in various currencies. Changes in the composition of international investment portfolios can easily lead to sustained deviations of the exchange rate from its PPP value.

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Myth number 3: *The Bank of Canada should reduce interest rates when the dollar appreciates.* With the dramatic appreciation of the Canadian dollar over the past six years, from US62 cents in 2002 to roughly par today, many observers have urged the Bank of Canada to respond to the dollar's appregate demand and help to offset the slowing effects of the appreciation.

Like the other two myths, this argument is also appealing at first blush. The problem is that the proposed simple rule of thumb — that currency appreciations should be followed by interest rate reductions fails to recognize that there must be some underlying cause to the change in the exchange rate, and the specific cause will determine the overall effects on the aggregate economy. Before the Bank of Canada can take any action designed to keep inflation close to its 2 percent target, it is essential that it understand the underlying cause of any significant and sustained change in the exchange rate.

In other words, not all currency appreciations are the same. In what follows, two types of exchange rate changes are examined. In both cases, the Canadian dollar appreciates, but the appropriate action by the Bank of Canada is different. Keep in mind that the objective of the bank is to maintain inflation close to the 2 percent target, and this is accomplished by keeping aggregate output close to its capacity level.

The last several years have presented Canada with two distinct types of currency appreciations. Following the language introduced in a February 2005 speech by Governor David Dodge, we can think of type 1 and type 2 shocks. An appreciation caused by a type 1 shock occurs when there is an increase in the global demand for Canadian-produced goods and services. The simplest example is rising world commodity prices, like those observed between 2002 and 2006. An appreciation caused by a type 2 shock occurs

> when there is either an increase in global demand for existing Canadian assets or a multilateral exchange rate adjustment. The weakening of the US dollar against major world currencies that has occurred over the past several years is a good example. During the

past several years, both type 1 and type 2 shocks have contributed to an appreciating Canadian dollar, and a central difficulty for the bank, at any given time, has been to determine the relative importance of each type.

The essential difference between these two types of currency appreciations is that the type 1 shock begins with a direct boost to Canadian aggregate demand for goods and services, whereas the type 2 shock has its initial effect on asset markets. This simple but crucial difference explains why the two shocks have fundamentally different implications for the bank's monetary policy. Let's see this in a little more detail.

C onsider an economy with aggregate output initially equal to its capacity, and then a type 1 shock occurs — for example, a rise in world commodity prices. The rise in the prices of Canadian exports is a direct boost to aggregate demand; Canadian income and employment will rise. This is the direct effect of the shock. But as the Canadian dollar appreciates, and noncommodity exports become more expensive to foreign buyers, some of this aggregate expansion is reversed. (This is precisely the operation of the Dutch disease discussed above.) This is

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the dampening effect of the shock. But the overall effect is an expansion of Canadian aggregate demand. And if the initial shock is significant and expected to persist, the ultimate effect will be to push aggregate output above its capacity and thus to increase inflationary pressures. To maintain its inflation target, the bank will respond by raising its target for the overnight interest rate.

Now imagine that the same economy is instead confronted by a type 2 shock — for example, a general weakening of the US dollar against all major currencies. There is no direct effect from this shock on Canadian aggregate demand. But as the Canadian dollar appreciates, we get the same dampening in Canadian exports as with the type 1 shock. So there is no direct boost to aggregate demand but there is a dampening due to the appreciation. The overall effect is therefore a reduction in Canadian aggregate demand. If the shock is significant and expected to persist, the ultimate effect will be to push aggregate output below its capacity and to reduce inflationary pressures. To maintain its inflation target, the bank will respond by reducing its target for the overnight interest rate.

Some people might argue that the Bank of Canada would be inconsistent if it were to follow the actions described above. In the first case, the appreciation is followed by a tightening of monetary policy, while in the second case the appreciation is followed by a loosening. But there is no inconsistency. In both cases, the Bank of Canada is taking an action designed to keep inflation close to the 2 percent target, and that is accomplished by trying to keep aggregate output close to its capacity level.

The Bank of Canada cares a great deal about changes in the Canadian exchange rate, but not because it is targeting a specific value. It cares about exchange rate changes for two reasons. First, such changes reveal the underlying economic shocks that are hitting the Canadian economy. Second, the exchange-rate changes themselves, by changing international relative prices, will have an effect on patterns of Canadian production and consumption.

The bottom line is that there are many possible sources of exchange rate changes, and the Bank of Canada's appropriate response to any given change depends crucially on the *cause* of that change. The bank does not target any specific value of the exchange rate, but nonetheless pays close attention to exchange rate changes. A flexible exchange rate is a crucial part of the bank's overall inflation-targeting regime.

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