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Locked in a Close Embrace? Canada's Current Account Adjustment Vis-à-vis the United States

PAUL MASSON

In 2003, Canada's currency appreciated by 20 percent against the US dollar. Given the lags in the adjustment of trade to relative price changes, what are the prospects for Canada's current account position? Will Canada, as the United States' largest trading partner, contribute substantially to reestablishing equilibrium in the US external accounts, currently in a large deficit? Or on the contrary, is Canada so closely integrated with the US economy that exchange rate changes will have little impact, for instance, because Canadian prices and wages adjust fully, or because Canadian industry, which exhibits substantial US ownership and is well integrated with the US economy, produces inputs that are closely linked to US activity?

These issues are addressed here by considering the effects of movements of the exchange rate on Canada's economic activity, prices, and overall current account position.[1] After first reviewing recent macroeconomic performance in Canada, I then describe a simple framework of analysis and attempt to quantify the effects on the current account in the context of this framework.

Another important issue is whether the adjustment of the Canadian dollar is likely to continue. From Canada's perspective, the answer to this

Paul Masson is adjunct professor and research fellow at the Rotman School of Management of the University of Toronto. *He is grateful to Peter Dungan for access to the University of Toronto's Focus model and data, and to John Murray, Bill Robson, and Larry Schembri for comments; they should not be held responsible for the views expressed here, however.*

1. Though data for the bilateral position with the United States exist, they are less complete than for the overall position. Given the importance of the United States for Canada's international trade and investment, in practice the overall position is a good proxy for the bilateral one.

question will be strongly influenced by the path for Canadian interest rates relative to US ones, and the prospects for commodity prices. The Bank of Canada's inflation-targeting framework keys interest rates to the forecast for inflation, which, in turn, is dependent on both the output gap and the extent to which appreciation is passed through into domestic prices. Movements in commodity prices have historically been linked to movements of the Canadian dollar, given the importance for the Canadian economy of agriculture, metals and minerals, and forest products.

Whether the Canadian dollar will continue to appreciate is also related to developments in the United States. The contrasting trends in net foreign asset positions in the United States and Canada are detailed here, and they are anecdotally related to trends in fiscal policies. If the current expansionary stance of US fiscal policy continues—combined with Canada's fiscal prudence—it is argued that the Canadian dollar's real appreciation against the US dollar is unlikely to be permanent. Indeed, a reversal is already occurring.

Canada's Recent Macroeconomic Performance

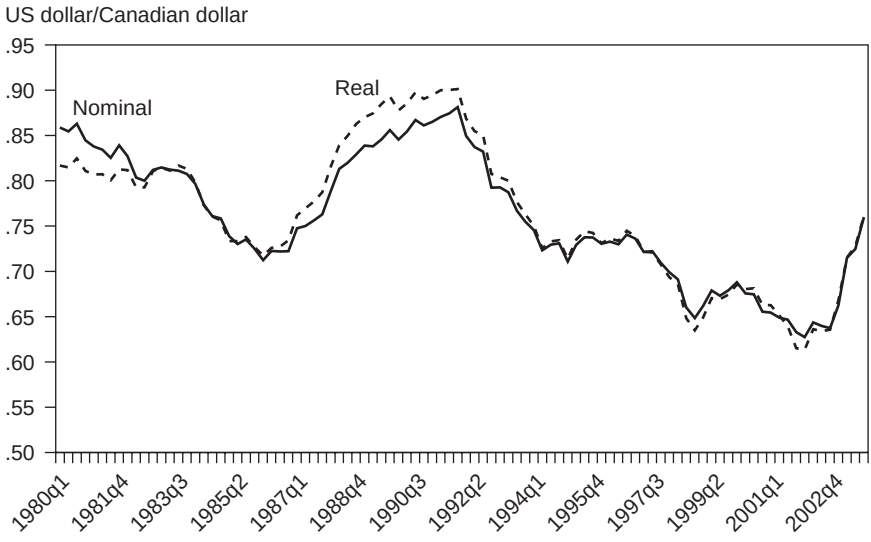
Canada in 2003 suffered from the global slowdown, and in particular from slow growth in its major trading partner, the United States. Earlier in the year, growth prospects in Canada seemed better than in its neighbor to the south, leading the Bank of Canada to raise its target for the overnight rate in the context of upward price pressures and a positive output gap (i.e., output above potential).

However, a subsequent slowdown in activity, fueled in part by special factors such as SARS and mad cow disease, but also by the rise in the Canadian dollar, led to a reversal of those interest rate increases. For the year as a whole, real GDP grew by 2.1 percent relative to the average for 2002, well below US growth of 3.1 percent.[2] By the end of the year, core inflation was under the midpoint of the Bank of Canada's target range, 2 percent, while the output gap had returned to negative territory.

Roughly paralleling the adjustment of other major currencies against the US dollar, the Canadian dollar experienced a sharp bilateral appreciation, and during 2003 gained about 22 percent—more than the euro (20 percent), but less than the Australian or New Zealand dollars (34 and 25 percent, respectively). As detailed in a report by the TD Bank Financial Group (2004), the upward adjustment in the value of the Canadian dollar was not unexpected—various measures had suggested that the currency had been undervalued since the mid-1990s, but the appreciation

2. These figures reflect revisions to US and Canadian national accounts data announced at the end of May 2004. The new data were not, however, used in estimating the equations described below.

Figure 7.1 Real and nominal bilateral exchange rate, Canada, 1980–2003



Source: Statistics Canada, and author's calculations.

was surprising in its sharpness. Despite the longest history of floating among global currencies (the Canadian dollar was already floating in the 1950s, and has floated continuously since 1970), never had the currency appreciated by 20 percent in such a short time span (figure 7.1).

The reason for expecting some upward adjustment of the value of the currency included several years of Canada's strong external balance of payments position and favorable movements in relative prices, and, more recently, a short-term interest differential in favor of Canada. Historically, Canada has run large current account deficits, but these had been reduced dramatically by the mid-1990s. Starting in 2000, Canada was running current account surpluses of 2 to 3 percent of GDP (figure 7.2).

During the 1990s, the Canadian dollar depreciated in nominal terms against the US dollar, though Canadian inflation was consistently below that in the United States. At the end of 2002, the loonie[3] was worth about 63 US cents, not far from its record low, and the real bilateral exchange rate was about 25 percent below its level of a decade earlier. Measures of the equilibrium exchange rate based on purchasing power parity or the pro-

3. The term "loonie" comes from the image of the loon on the dollar coin (unlike the United States, Canada no longer has a one-dollar bill). The replacement of the two-dollar bill also stimulated a search for a nickname, with "toonie" winning out over "doubloon."

Figure 7.2 Canada's current account, 1980–2003

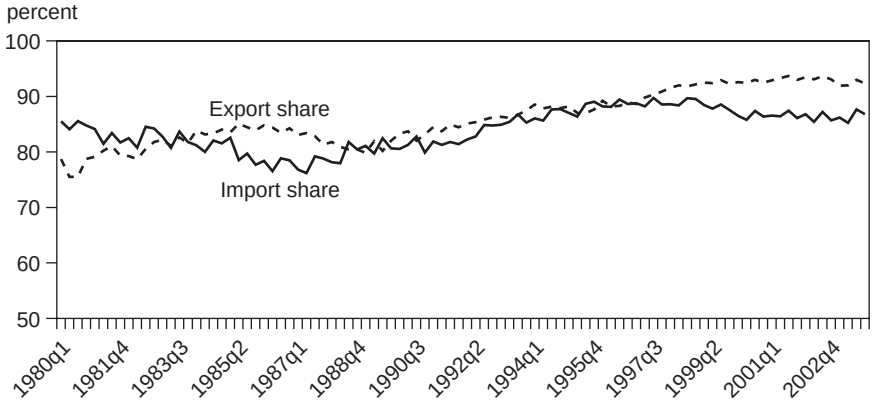
Source: Statistics Canada and author's calculations.

ductivity gap between the two countries all suggested some appreciation, but the range of estimates was wide, from 72 to 89 US cents (TD Bank Financial Group 2004). Thus, the appreciation that occurred was well within that range of equilibrium estimates.

The timing and size of the appreciation were no doubt affected by movements in US and Canadian interest rates. While weakness in activity and an absence of inflationary pressures led the US Federal Reserve to lower interest rates throughout the period 2001–03, the strength of the recovery in activity led the Bank of Canada to raise interest rates twice early in 2003. After the Canadian dollar's sharp appreciation and in the light of subsequent negative shocks to economic activity, Canada's central bank lowered rates once again by a total of 50 basis points in July and September 2003, and by a further 75 basis points in January, March, and April 2004. The Canadian dollar—after peaking at 78.86 US cents in January—had declined back to 72 US cents by mid-May 2004, as the strength of the US recovery stimulated speculation about an imminent increase in US interest rates by the Fed.

Various reasons have been advanced to explain the weakness of the loonie in the decade preceding its recent appreciation. Canada underwent a period of fiscal retrenchment during the 1990s, contributing to weak aggregate demand; and the North American Free Trade Agreement (NAFTA) led to a restructuring of Canadian industry and disruption to aggregate supply. The early 1990s were a period of constitutional crisis

Figure 7.3 Share of United States in Canada's exports and imports, 1980–2002



Source: Statistics Canada and author's calculations.

and until 1995, when Quebec voted "no" in a referendum on sovereignty, uncertainty about the future of the country. Given Canada's poor growth performance, high government indebtedness, and political problems, foreign observers did not view the country as an attractive place for foreign investment. And finally, the Canadian dollar seems to have been strongly influenced by developments in commodity prices, which were weak for much of the period and have strengthened only recently, at roughly the same time as the appreciation of the currency. Indeed, an equation developed at the Bank of Canada explains the bilateral exchange rate, using as main explanatory variables nonenergy commodity prices and the Canada–United States interest differential (Djoudad et al. 2001).

Of course, the Canadian dollar's appreciation has to be understood in the context of the downward adjustment of the US dollar against most other currencies as well. But in Canada, that dimension is usually ignored—due to the overwhelming importance of the US economy for Canada. Indeed, the United States has become a more and more important trading partner, reflecting the effects of NAFTA, and now accounts for more than 85 percent of Canada's total imports and more than 90 percent of exports (figure 7.3). Thus, Canada's effective exchange rate largely mirrors movements in its bilateral rate with the United States.

A Model of Canadian Current Account Adjustment

In the next section, we consider the effects of the appreciation that took place in 2003 for economic activity, inflation, and the current account in the following two years. To do so, I use an estimated aggregate demand and

supply framework, accompanied by conventional equations for export and import prices and volumes, which together allow inference to be made on the path for the current account. The econometric framework is described in this section. After using it for forecasting 2004–05, I then go on to consider whether the current account would be at its equilibrium level (somehow defined), or alternatively whether the appreciation of the Canadian dollar is likely to go further, and, if so, what might be its effect in future years.

The equations used in the assessment were estimated using quarterly data for the period 1980–2003. They are conventional in that they assume, given the stickiness of prices, that GDP is determined by demand in the short run. The rate of change of prices depends on the pressures of excess demand and, in addition, on long-run tendencies to reestablish purchasing power parity. Finally, Canada's net exports depend on economic activity in Canada and abroad, and the real exchange rate. The notation is as follows: lowercase letters indicate logarithms of the relevant variable, and D is the first-difference operator. Unstarred variables refer to Canada, and starred variables refer to the United States. Thus, $p(p^*)$ refers to the log of the Canadian (US) GDP deflator, and $y(y^*)$ to the log of Canadian (US) real GDP. The exchange rate e in logs is defined as US dollars per Canadian dollar, so that an increase in e is an appreciation, as is an increase in the real exchange rate, *rer* (defined in terms of GDP deflators): $rer = p + e - p^*$.

The change in the log of real GDP (Dy) depends on lagged values for the real interest rate (RR, defined as the 90-day finance company paper rate, minus the four-quarter rate of inflation, as a percent), which influences domestic demand, the log of the real exchange rate, and foreign activity (explaining the demand for Canadian goods from abroad). Given the importance of the United States, foreign activity can be well approximated by the log of US GDP (y^*). When the latter is included, there is no significant role for non-US, foreign GDP. I have also constrained the long-run coefficient for US GDP to be unity. The log of the real exchange rate is strong and significant, while the real interest rate is less important. A time trend, t, which increases by one each quarter (first quarter of 1960 = 0) is also included to account for different trend growth rates in the two countries (absolute t-ratios are given in parentheses):

$$\begin{aligned} Dy = {} & \underset{(5.10)}{0.448}Dy^* + \underset{(4.97)}{0.396}Dy^*_{-1} - \underset{(3.46)}{0.0253}rer_{-1} \\ & - \underset{(1.46)}{0.000470}RR_{-1} - \underset{(2.36)}{0.0651}\left(y_{-1} - y^*_{-1}\right) - \underset{(3.05)}{0.000133}t + 0.320. \\ & \text{Adjusted } R^2 = .5791 \end{aligned} \tag{7.1}$$

The estimated equation can be interpreted as an error-correction model, where the long-run cointegrating vector is given by

$$y = y^* - 0.388rer - 0.00722RR - 0.00205t + const. \tag{7.2}$$

Thus, after accounting for lags in adjustment, a 1 percent real appreciation produces a roughly three-eighths of 1 percent decrease in GDP, while a 1-percentage-point increase in the real interest rate reduces output by about three-quarters of 1 percent. Their short-run effects, evident from equation 7.1, are considerably smaller, however—only 0.03 and 0.05 percentage points, respectively, in the quarter following. A 1-percentage-point increase in US output growth increases Canadian GDP growth by 0.45 percentage points in the same quarter, a cumulative 0.85 percentage points after two quarters, and a full 1 percent in the long run.[4] However, the coefficient for the time trend reflects the slower trend growth of Canadian GDP in the sample period we have used; it implies that in steady state, Canada's quarterly growth of GDP would be lower by 0.2 percent, or 0.8 percent on an annual basis.

In explaining the rate of change of the GDP deflator, I began with a conventional Phillips curve, where inflation depended on expected inflation, plus the output gap, that is, the extent that GDP differs from full-employment (or nonaccelerating-inflation) output. Due no doubt in part to the problems of estimating the unobserved expectations and output gap variables, this specification gave relatively little role to domestic excess demand pressures. Instead, therefore, I departed from the conventional Phillips curve and estimated an equation where the price adjustment is viewed as an error-correction model with a long-run relationship linking prices in Canada to those in the United States, corrected for the exchange rate. This can be viewed as adjustment toward purchasing power parity, that is, to an equilibrium level for Canada's real exchange rate, defined in terms of relative GDP deflators with the United States:

$$\begin{aligned} Dp = {} & \underset{(6.09)}{0.972}\,Dp^{*} + \underset{(1.42)}{0.0375}(Dp_{-1} + De_{-1}) - \underset{(2.21)}{0.0127}\,rer_{-1} \\ & + \underset{(2.64)}{0.0580}\left(y_{-1} - y^{*}_{-1}\right) - 0.278. \end{aligned}$$

$$\text{Adjusted } R^2 = 0.5793 \qquad (7.3)$$

Interestingly, this specification gave a more satisfactory estimated equation than the conventional Phillips curve, which did not produce a significant coefficient on the output gap variable. The estimates reflect the strong pull from the United States, in which both the real exchange rate and the difference in the logs of Canadian and US GDPs explain pressures on Canadian inflation. Though it does not rely on an estimate of trend or capacity output, this specification nevertheless gives a role for demand pressures

4. The unit coefficient is imposed in estimation; not doing so gives a coefficient for US GDP in the cointegrating vector of 2.0, but also a much more negative time trend. So the unconstrained equation gives an even greater role for the United States, and the coefficient on lagged US output is significant at the 1 percent level.

(and hence Canadian monetary policy) in affecting Canada's inflation (as does a conventional Phillips curve). In addition, it enforces a long-run error correction of deviations from purchasing power parity. The estimated equation implies that increases in US inflation affect Canada's inflation rate almost one-for-one in the same quarter, while a 1 percent increase in the lagged difference in GDP levels in favor of Canada produces a 0.06-percentage-point acceleration in Canada's inflation. The lagged change in the nominal exchange rate has a small, and not very significant, effect, which is consistent with a very low short-run pass-through of exchange rate changes into prices.[5] Thus, the recent exchange rate appreciation (according to this equation) should have only a modest effect on the GDP deflator in the short run.

There is also an effect of the lagged real exchange rate, which can be interpreted as an error-correction term tending to reverse deviations from purchasing power parity, albeit with a long lag: The error-correction term implies that prices adjust over time to bring about a normal level of competitiveness relative to the United States. Thus, the equation does not imply that Canada's inflation is "made in the United States": Canadian monetary policy affects inflation through changes in the exchange rate as well as in aggregate demand. Given the importance of the United States for the Canadian economy, it is not surprising that such US variables turn out to be strongly significant, however. It would be interesting to do further tests of this specification against others that included only Canadian variables.

Error-correction models explain Canada's export and import volumes and prices. Export prices (px) depend on commodity prices ($pcom$) and the US GDP deflator, both denominated in Canadian dollars:

$$\begin{aligned} Dpx = {} & \underset{(2.34)}{.0787}\,Dpcom + \underset{(4.87)}{.3181}(Dp^* + De) - \underset{(3.73)}{.2087}\,px_{-1} \\ & + \underset{(3.46)}{.0613}\,pcom_{-1} + \underset{(3.14)}{.0730}(p^*_{-1} + e_{-1}) - .0525 \end{aligned}$$

$$\text{Adjusted } R^2 = .3713 \qquad (7.4)$$

Export volumes (x) depend on US output and export prices relative to the US GDP deflator, with the change in US output being the main driving force:

$$\begin{aligned} Dx = {} & \underset{(4.27)}{1.400}\,y^* - \underset{(1.55)}{.2132}(Dpx - Dp^*) - \underset{(2.00)}{.0893}\,x_{-1} \\ & + \underset{(1.51)}{.1321}\,y_{-1} - \underset{(1.38)}{.0717}\left(px_{-1} - p^*_{-1}\right) - .0770 \end{aligned}$$

$$\text{Adjusted } R^2 = .2048 \qquad (7.5)$$

5. When entered by itself (either contemporaneously or lagged), the change in the nominal exchange rate did not have a significant effect.

Import prices (*pm*) similarly depend strongly on US prices, converted to Canadian currency, as well as on Canadian output prices (though only the first difference of the latter, and not their lagged level, came in significantly):

$$\underset{}{Dpm} = \underset{(2.41)}{.2889Dp} + \underset{(18.31)}{.7261(Dp^* + De)} - \underset{(3.48)}{.1530pm_{-1}}$$
$$+ \underset{(3.50)}{.0824\left(p^*_{-1} + e_{-1}\right)} - .0333$$
$$\text{Adjusted } R^2 = .8062 \qquad (7.6)$$

Import volumes depend conventionally on import prices relative to the Canadian GDP deflator and Canadian activity, with the latter variable constrained to have a unit elasticity in the long run:

$$\underset{}{Dm} = \underset{(3.67)}{1.231Dy} + \underset{(2.85)}{.4169(Dp - Dpm)} + \underset{(5.69)}{.5735Dx}$$
$$- \underset{(2.14)}{.1041(m_{-1} - y_{-1})} + \underset{(2.60)}{.0951(p_{-1} - pm_{-1})} + \underset{(1.75)}{.0431x_{-1}} - .6649$$
$$\text{Adjusted } R^2 = .4973 \qquad (7.7)$$

In addition to the usual determinants, exports are also included and enter significantly, reflecting the large imported input component of Canada's exports (due, for instance, to the integrated North American automobile production and assembly industry).[6]

Finally, I include an equation explaining Canada's consumer price index (CPI) on the basis of Canadian and US output prices. Here, neither the national accounts import price (*pm*) nor the exchange rate came in significantly; instead, US prices in domestic currency dominate any other foreign price variables:

$$\underset{}{Dcpi} = \underset{(6.02)}{.4760Dp} + \underset{(2.78)}{.4426Dp^*} \underset{(3.30)}{-.1579cpi_{-1}} + \underset{(2.88)}{.1483p_{-1}} + \underset{(1.42)}{.0305p^*_{-1}} + .0131$$
$$\text{Adjusted } R^2 = .7806 \qquad (7.8)$$

An interesting and important conclusion that emerges from estimating this model is the strength of linkages with the United States. Canadian GDP depends strongly on economic activity in the United States. Similarly, movements in Canada's GDP deflator mirror one-for-one inflation in the United States, provided Canada's output and real exchange rate are at equilibrium levels. Canada's exports are strongly influenced by activity in the United States, but the trade balance less so, because higher exports are associated

6. A dummy variable for either the free trade agreement with the United States or its successor, NAFTA, did not enter significantly.

with higher imports. There is an important independent effect on exports and imports of Canadian prices relative to US prices, but because US prices strongly influence those in Canada, the scope for divergent movements is limited. No doubt further testing of specifications that contain other foreign influences in addition to that of the United States, and other Canadian variables, is warranted. However, it is clear from these results that US influences on the Canadian economy are strong—a fact that needs to be taken into account when considering how Canada may contribute to US external adjustment.

What does this conclusion of a tight linkage with the United States imply for the possibility of adjusting the United States' current account position relative to Canada? It is important to understand that this does not mean that the trade balance cannot be changed by policy measures or exchange rate changes. On the contrary, aggregate demand and relative price effects are strong. If one simulates the equations for trade prices and volumes together (taking real GDP and its deflator as exogenous), then in the long run, a 10 percent real appreciation relative to the United States can be expected to reduce Canada's overall net exports by about 2 percent of GDP (with 1.2 percent of GDP occurring by the end of the second year), whereas 1 percent higher Canadian activity would reduce the net export ratio by 0.4 percent of GDP (0.5 percent by the end of the second year, declining back subsequently as lower exports reduced imports).

However, output and price developments in the United States will have a big impact on activity and prices in Canada, and these adjustments to Canadian variables will have the effect of muting the impact on the current account of US policy changes—unless the exchange rate adjusts in the desired direction. Instead, we take movements in the exchange rate as exogenous for the purpose of this exercise. Though there is some evidence of long-run mean reversion toward a purchasing power parity level of the exchange rate and of short-run effects of interest rate differentials, structural models of the exchange rate are not very successful in the short run, as has been well documented.

The Effect of Dollar Appreciation on Prospects for 2004–05

We now turn to the forecasts of the model for 2004–05 assuming that the exchange rate takes on the value of 75 US cents for those two years, under different assumptions concerning US growth and inflation. Commodity prices are assumed to remain unchanged in Canadian dollar terms at their fourth-quarter 2003 levels. The simulated values are presented in table 7.1.

In the base case, we assume that US real GDP grows at a 3 percent annual rate for each quarter of 2004–05, and that the US GDP deflator increases at a 2 percent annual rate. It can be seen (table 7.1) that such a scenario for the United States produces a less positive outcome for Canada, which experi-

Table 7.1 Constant exchange rate, various scenarios for Canada, 2003–05 (growth in percent; or ratio to GDP, in percent)

	Fourth quarter/ fourth quarter			Annual average		
	Actual	Forecast		Actual	Forecast	
Scenario	2003	2004	2005	2003	2004	2005
Base case						
GDP	2.4	1.4	1.6	2.1	2.0	1.5
GDP deflator	2.4	1.8	1.4	3.2	1.7	1.5
Ratio of current balance to GDP	2.3	1.7	1.0	2.4	2.2	1.2
Consumer price index	1.7	2.2	1.9	2.7	1.7	2.0
Memorandum: US GDP	4.3	3.0	3.0	3.1	3.9	3.0
Memorandum: US GDP deflator	1.6	2.0	2.0	1.7	1.8	2.0
Stronger US growth						
GDP	2.4	2.7	1.7	2.1	2.8	2.1
GDP deflator	2.4	1.8	1.3	3.2	1.7	1.4
Ratio of current balance to GDP	2.3	1.6	0.8	2.4	2.2	1.1
Consumer price index	1.7	2.2	1.8	2.7	1.7	1.9
Memorandum: US GDP	4.3	4.6	3.0	3.1	5.0	3.5
Memorandum: US GDP deflator	1.6	2.0	2.0	1.7	1.8	2.0
Higher US inflation						
GDP	2.4	1.4	1.6	2.1	2.0	1.5
GDP deflator	2.4	3.9	3.4	3.2	3.0	3.5
Ratio of current balance to GDP	2.3	1.4	0.3	2.4	2.0	0.7
Consumer price index	1.7	4.2	4.0	2.7	2.9	4.1
Memorandum: US GDP	4.3	3.0	3.0	3.1	3.9	3.0
Memorandum: US GDP deflator	1.6	4.1	4.1	1.7	3.0	4.1

Source: Author's calculations.

ences slower growth than the United States in both 2004 and 2005, due in part to the lower growth trend as well as the lagged effects of 2003's exchange rate appreciation. The latter also helps keep inflation low, and the midpoint of the Bank of Canada's target for the core rate of change of the CPI seems likely to be achieved, because inflation stays below 2 percent for most of the period. Canada's current account surplus[7] declines, and it runs at about 1 percent of GDP at the end of 2005. This scenario for Canada suggests that Canada's central bank might have the scope to lower interest rates further, which could help to cushion any short-run weakness in activity.

We also consider alternative US scenarios in table 7.1. First, in line with some forecasters who expect a sharper rebound in US activity from the recent recession (preliminary 2004 data are consistent with this view), we assume growth in real GDP at a 5 percent rate in the first half of 2004, declining to 4 percent in the second half, and 3 percent in 2005. We keep the

7. The current account ratio is linked to net exports, which are forecast using the equations above. The current account balance was lower than net exports by 0.466 percent of GDP in 2003. That difference is mainly accounted for by factor services (i.e., net payments abroad to labor and capital), and it is assumed to remain constant at its average 2003 level in 2004–05.

other assumptions unchanged. Second, we return to the base case's growth assumption but assume higher US inflation, 4 percent instead of 2 percent.

In the first alternative scenario, Canadian GDP growth is substantially higher, at more than 2 percent in both years, but still below most measures of its potential. Inflation is little affected, nor is the current account. It is notable that Canada's current account surplus does not widen in response to higher US growth, because Canada's growth also responds. Thus, the integration of the two economies suggests that "expenditure-reducing" policies in the United States—that is, policies that affect US aggregate demand (to use the old dichotomy)—are not effective in adjusting current account imbalances between the two countries, in the absence of changes in the exchange rate. Of course, in the other direction, a reduction of Canadian demand would not have much of an effect on US GDP, so it would likely have a bigger impact on their bilateral current account. In the next section, we consider "expenditure-switching," that is, adjustment through altering relative prices.

The final scenario in table 7.1 considers higher inflation in the United States. In this scenario, Canadian growth is not much affected, but Canadian inflation rises sharply. As a result, Canada's real exchange rate does not depreciate, and the current account does not improve—indeed, it worsens because of a terms of trade deterioration as input prices rise. Canada's CPI increases by about 4 percent (fourth quarter/fourth quarter) in 2004 and in 2005. Such a scenario would probably lead to a tightening of monetary policy in Canada to avoid breaching the Bank of Canada's 2 percent inflation target. Given the weakness in Canadian activity, this would be a "worst-case" scenario; like the oil price shock of the early 1970s, it would involve stagflation, in which the need to resist inflationary pressures added to the dampening effects on activity of a negative supply shock.

Continued Exchange Rate Appreciation?

In the base-case scenario, Canada's current account position has declined substantially but remains in surplus. We therefore consider a scenario with further Canadian dollar appreciation. Here it is simply assumed that the loonie appreciates by a further 10 percent (from 75 US cents), to 82.5 US cents. This is given in the first panel of table 7.2, where it is assumed that US growth and inflation take the values of the base case in table 7.1. Whether that appreciation occurs will likely be influenced by the path of US and Canadian interest rates, which we consider below.

Such a scenario of further appreciation implies still slower economic activity in Canada, and GDP grows by less than 1 percent in 2005. Despite the weakness of Canadian activity, Canada's current account surplus decreases further relative to the base case of table 7.1 as a result of the real appreciation, moving to a surplus of only 0.6 percent of GDP at the end of 2005. Consistent with the weakness of activity and the downward pressure on import prices, inflation remains low.

Table 7.2 Further appreciation of the loonie by 10 percent, various scenarios for Canada (growth in percent; or ratio to GDP, in percent)

	Fourth quarter/ fourth quarter			Annual average		
	Actual	Forecast		Actual	Forecast	
Scenario	2003	2004	2005	2003	2004	2005
Base case						
GDP	2.4	0.7	0.9	2.1	1.6	0.7
GDP deflator	2.4	1.8	0.6	3.2	1.8	0.9
Ratio of current balance to GDP	2.3	1.2	0.6	2.4	1.8	0.8
Consumer price index	1.7	2.2	1.4	2.7	1.7	1.7
Memorandum: US GDP	4.3	3.0	3.0	3.1	3.9	3.0
Memorandum: US GDP deflator	1.6	2.0	2.0	1.7	1.8	2.0
Real rate reduced by 1 percentage point						
GDP	2.4	0.9	1.0	2.1	1.7	0.8
GDP deflator	2.4	1.8	0.7	3.2	1.8	0.9
Ratio of current balance to GDP	2.3	1.2	0.4	2.4	1.8	0.7
Consumer price index	1.7	2.2	1.5	2.7	1.7	1.7
Memorandum: US GDP	4.3	3.0	3.0	3.1	3.9	3.0
Memorandum: US GDP deflator	1.6	2.0	2.0	1.7	1.8	2.0
Commodity prices stronger by 10 percent						
GDP	2.4	0.7	0.9	2.1	1.6	0.7
GDP deflator	2.4	1.8	0.6	3.2	1.8	0.9
Ratio of current balance to GDP	2.3	1.8	1.3	2.4	2.2	1.5
Consumer price index	1.7	2.2	1.4	2.7	1.7	1.7
Memorandum: US GDP	4.3	3.0	3.0	3.1	3.9	3.0
Memorandum: US GDP deflator	1.6	2.0	2.0	1.7	1.7	2.0

Source: Author's calculations.

Thus, a further appreciation of that magnitude would bring the Canadian economy close to recession. In those circumstances, the Bank of Canada would almost certainly be induced to react by lowering interest rates (unless this were combined with the third scenario of table 7.1, with higher US inflation). The second scenario of table 7.2 thus assumes that the real short-term interest rate would decline to zero from its fourth-quarter 2003 level of about 1 percent (which was assumed to remain unchanged in the scenarios of table 7.1). Such a policy reaction would produce little extra GDP growth, but applying more monetary stimulus might be constrained by the fact that nominal interest rates, already low, cannot go below zero. As it is, the 90-day finance company paper rate, at 3 percent, is at record low levels.[8] In this scenario, it is assumed to decline to 2 percent at the end of 2005. The current account position is not very different from the base case, given

8. The overnight rate, the Bank of Canada's operating target, was 2 percent in May 2004, a four-decade low.

that the real exchange rate is very similar in the two scenarios of table 7.2. The second scenario could of course be questioned for having assumed the same nominal exchange rate as in the base case, and criticized for being internally inconsistent. Lower Canadian interest rates could be expected to limit the extent of further Canadian dollar appreciation, to an extent that would depend on the length of time the differential vis-à-vis the United States could be expected to last, and through this channel provide greater stimulus to economic activity in Canada.

A final scenario suggests that if commodity prices strengthen further—by 10 percent (in Canadian dollar terms) throughout 2004–05 relative to their level in the fourth quarter of 2003, then Canada's current account could continue to show a surplus well in excess of 1 percent of GDP. Nevertheless, given that economic activity and inflation are projected to remain weak, appreciation beyond the level of 80 US cents would still seem unlikely, in the light of the downward pressures they would impose on Canadian interest rates.

Canada's Equilibrium Current Account Position

The previous section did not consider what the equilibrium current account balance might be. There is an extensive literature on this issue; for instance, macroeconomic balance in the short to medium run may require an excess of domestic saving over investment (Isard et al. 2001). Here we explore a longer-run anchor for the current account, namely, a country's desired net foreign asset position.

If Canada reaches a steady-state equilibrium, then its net international investment position vis-à-vis the rest of the world, converted to Canadian dollars, must grow in line with Canadian nominal GDP. If we use uppercase letters to indicate dollar figures and lowercase letters to indicate ratios to Canadian GDP, and if we let F equal the net foreign asset position, DF the first difference in F, CA the current account balance, TB the trade balance (actually, the balance on goods and services excluding investment income), and r the return on net foreign assets, then

$$DF = CA = TB + rF \tag{7.9}$$

In a steady state, F grows at the same rate (call it γ) as GDP, so

$$DF = \gamma F = TB + rF \tag{7.10}$$

or, assuming that $r > \gamma$,

$$TB = -F/(r - \gamma) \tag{7.11}$$

And as ratios to GDP,

$$tb = -f/(r - \gamma) \tag{7.12}$$

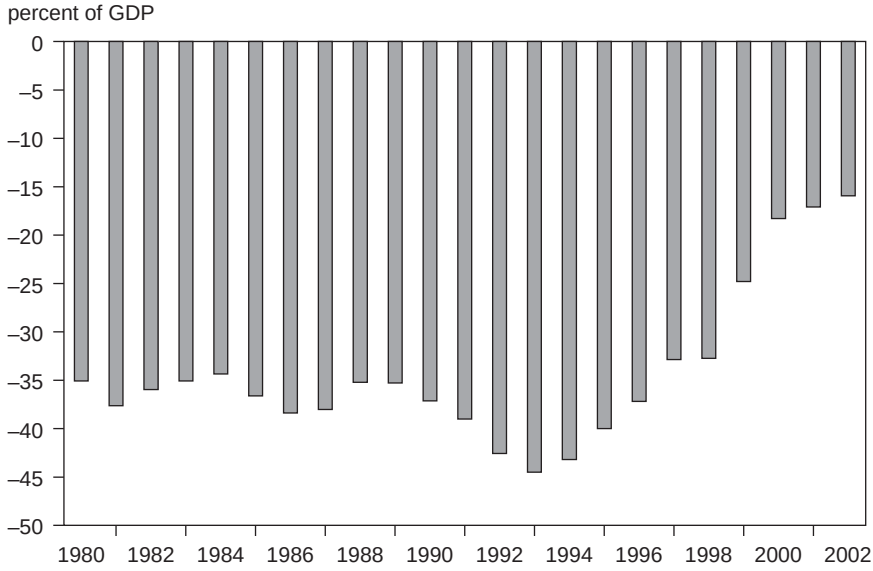
Thus, if we can derive an equilibrium value for the net foreign asset ratio, f, then we can infer the equilibrium trade balance that is consistent with it: a surplus if the net foreign asset position is negative (so that Canada needs to export more than it imports, to service its debts), or a deficit if the net foreign asset position is positive (so that Canada can afford to spend some of its investment earnings abroad). Once we know the equilibrium trade balance, we can calculate the equilibrium real exchange rate from equations linking it to exports and imports.

During the past two decades, the United States and Canada have had dramatically different trends in their net foreign asset positions. The United States was a net international creditor until the early 1980s, but it had a net debtor position that was the equivalent of 7 percent of its GDP in 1994 (valuing direct investment at market prices) and 25 percent of GDP at the end of 2002, the latest year for which there were data available from the US Bureau of Economic Analysis at the time of this writing. In contrast to the United States, Canada ran down its net international indebtedness considerably, from 45 percent of GDP in the mid-1990s to 15 percent in 2002 (figure 7.4).

Does economic theory have anything to say about the long-run international investment position? There are two candidates: the literature on "stages of economic growth" and classical saving theory. The literature on stages of economic growth suggests that countries in the course of their development should move through various phases (Crowther 1957; Fischer and Frenkel 1972). First, being little developed initially they should exhibit a high rate of return on foreign capital and attract foreign investment; they become debtors as well as running trade and current account deficits. As they develop export capacity, they may start to run trade surpluses even though the current account is in deficit, as they are still servicing large foreign indebtedness. Eventually, they pay off debt and accumulate foreign assets. The final stage, that of a "mature creditor," should see a current account surplus that is consistent with a constant positive ratio of net foreign assets to GDP, with the current account surplus corresponding to a small trade deficit that is more than offset by a surplus on net investment earnings from abroad.

Unfortunately, the literature on stages of economic growth has proven of little use in explaining the evolution of external balances of either poor or rich countries. On the one hand, the poorest countries do not seem to have profitable investment opportunities (for reasons that are much debated but no doubt include poor governance, lack of contract enforcement, and inadequate infrastructure). On the other hand, some rich countries, like the United States and Canada, have large net debtor positions. Moreover, the United States, surely a mature and developed country, has dramatically moved from creditor to debtor in the past two decades, as was mentioned

Figure 7.4 Canada's net foreign assets, 1980–2002



Source: Statistics Canada and author's calculations.

above. The notion of growth stages has also been challenged on theoretical grounds, with Michael Bazdarich (1978) showing that they would not occur in an optimal growth model.

The second theory, related to classical saving theory, suggests that in the long run the country with the higher rate of time preference should be a borrower from abroad, while countries with less impatience should be creditors (see Buiter 1981). At first glance, this does not give us much guidance, for it is hard to marshal evidence that the rate of time preference is an unchanging structural parameter that differs systematically across countries. However, one component of "impatience" is the willingness to run fiscal deficits.

In fact, the path of fiscal policy (relative to other countries) provides a broad-brush explanation of the postwar trends in net foreign asset positions (and in current accounts).[9] The effect of the Ronald Reagan administration's spending spree on the US external balance has been much studied, and the George W. Bush administration seems bent on emulating it, completely squandering a brief accumulation of surpluses achieved by Bill Clinton's administration. In the short to medium run, US fiscal policy

9. Masson, Kremers, and Horne (1994) found that the net foreign asset positions of the Group of Three countries were cointegrated with public debt and demographic variables.

seems likely to involve continuing deficits. Canada also had a period of fiscal profligacy in the 1980s and early 1990s, but this was followed by a determined and successful attempt to eliminate public deficits. It seems likely, in the light of the February 2004 federal budget and trends in provincial finances, that Canada's general government fiscal position will remain in surplus, or close to it—though the June 2004 Canadian federal election campaign gave some grounds to doubt this.

Conclusions

What do these trends portend for the two countries' current account positions in the medium to long run? It seems likely that fiscal influences point to a continuation of US current account deficits and Canadian surpluses. Canada has learned the hard way that a small open economy with considerable foreign investment is very vulnerable to a crisis of confidence, because foreign investors withdraw capital at signs of unsustainable fiscal policies. As a result of their experience of the 1980s and 1990s, Canadians require their politicians to act with a high degree of fiscal prudence. Indeed, the latest federal budget brought forth some protests that the projected surplus did not provide as large a cushion as would be desirable.

In contrast, the United States has benefited from its unique position in the world economy; exporting to the US market is a key element of other countries' development strategies, and the US dollar is the preeminent reserve currency. Foreign central banks and private investors have shown themselves willing to accumulate US dollar claims seemingly without limit, even at very low rates of interest and in the face of dollar overvaluation (Dooley, Garber, and Folkerts-Landau 2003, 2004). As a result, there has been little pressure to adjust US policy toward fiscal and external sustainability.

If these trends continue, and foreigners do not put pressure on the United States, it seems unlikely that we will see the types of adjustment of Canada's current account that are illustrated by the scenarios described above. Instead, the United States will, as its economy picks up, raise interest rates, thus providing additional incentives for foreign capital inflows. The combination of loose fiscal policy and tight monetary policy—the Reagan administration's policy mix—will also produce a strong US dollar and continued US current account deficits. As a result, the appreciation of the Canadian dollar may not go further but instead may be at least partially reversed. By mid-May 2004, the exchange rate was back to 72 US cents, having reversed about half of the 20 percent appreciation that occurred in 2003.[10]

10. The exchange rate is clearly subject to much volatility; by August, it had returned to 76 US cents.

References

Bazdarich, Michael. 1978. Optimal Growth and Stages in the Balance of Payments. *Journal of International Economics* 8 (August): 425–43.

Buiter, Willem. 1981. Time Preference and International Lending and Borrowing in an Overlapping Generations Model. *Journal of Political Economy* 89 (August): 769–97.

Crowther, G. 1957. *Balances and Imbalances of Payments.* Cambridge, MA: Harvard University Press.

Djoudad, Ramdane, John Murray, Tracy Chan, and Jason Daw. 2001. The Role of Chartists and Fundamentalists in Currency Markets: The Experience of Australia, Canada, and New Zealand. In *Revisiting the Case for Flexible Exchange Rates.* Ottawa: Bank of Canada.

Dooley, Michael, David Folkerts-Landau, and Peter Garber. 2003. *An Essay on the Revived Bretton Woods System.* NBER Working Paper 9971. Cambridge, MA: National Bureau of Economic Research.

Dooley, Michael, David Folkerts-Landau, and Peter Garber. 2004. *The Revived Bretton Woods System: The Effects of Periphery Intervention and Reserve Management on Interest Rates and Exchange Rates in Center Countries.* NBER Working Paper 10332. Cambridge, MA: National Bureau of Economic Research.

Fischer, Stanley, and Jacob Frenkel. 1972. Investment, the Two-Sector Model and Trade in Debt and Capital Goods. In *Trade, Stability and Macroeconomics,* ed. G. Horwich and P. Samuelson. New York: Academic Press.

Isard, Peter, Hamid Faruqee, G. Russell Kincaid, and Martin Fetherston. 2001. *Methodology for Current Account and Exchange Rate Assessments.* IMF Occasional Paper 209. Washington: International Monetary Fund.

Masson, Paul, Jeroen Kremers, and Jocelyn Horne. 1994. Net Foreign Assets and International Adjustment: The United States, Japan, and Germany. *Journal of International Money and Finance* 13 (February): 27–40.

TD Bank Financial Group. 2004. *Loonie Tunes: Understanding the Rally in the Canadian Dollar and Its Consequences.* TD Economics Special Report. Toronto: TD Bank Financial Group.