LOONIE TUNES – UNDERSTANDING THE RALLY IN THE CANADIAN DOLLAR AND ITS CONSEQUENCES

TD Economics

Special Report

February 10, 2004

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Executive Summary

The roughly 20 per cent rise in the value of the Canadian dollar against the U.S. currency was a dominant economic story last year and it will continue to rivet our attention in 2004. The effects of last year's currency appreciation have not yet fully played out. Further, we can expect continued volatility in the months ahead. This paper examines where the Canadian dollar will be heading and the implications for the economy, the business sector, investors and monetary and fiscal policy.

The main findings are:

- There is nothing remarkable about the current value of the Canadian dollar, as it is within a range of what could be considered "fair value".
- It is the speed of adjustment from the "undervaluation" of recent years that is remarkable and unprecedented.
- Economic theory does not permit precise conclusions on where the Canadian dollar should be. Various approaches suggest a "fair value" range from 72 to 84 U.S. cents, but actual values can deviate from these valuations for long periods and the "fair value" measures change over time.
- TD Economics forecasts the Canadian dollar to end 2004 at 79 U.S. cents, but trade in a volatile fashion over the year within a band of 74 to 82 U.S. cents. However, in such volatile markets, companies and investors should consider various scenarios rather than relying on any particular forecast. On the basis that concerns over the U.S. savings imbalance will push the greenback down further, one scenario should contemplate a further rise in the Canadian dollar.
- Over time, a stronger value of the Canadian dollar should be a plus for our economy, encouraging greater capital accumulation. However, in the near term, it poses hurdles. Economic models suggest a hit of 1 to 5 percentage points off real output growth in each of the first 2 years of adjustment to a 20 per cent rise in the Canadian dollar. The impact on real output and profits differ sharply by sector, with exporters and those facing competition from U.S. imports suffering, while Canadian importers benefit.
- Canadian companies have not taken full advantage of the various mechanisms to insulate their bottom line from currency fluctuations. Similarly, while Canadian investors have been moving more of their portfolio into foreign markets, they have not paid adequate attention to the impact of currency swings.
- The stronger value of the Canadian dollar has facilitated lower interest rates in Canada because the appreciation has direct and indirect effects that will push inflation below the Bank of Canada's 2 per cent target.
- The stronger Canadian dollar has also added to the challenges of fiscal authorities by lowering their tax bases through weaker real output and lower inflation. Lower-than-otherwise interest rates are only a partial offset.

TD ECONOMICS FORECAST

Real Gross Domestic Product Growth in 2004

Growth in Potential Real Gross Domestic Product	3.0%
Extra Lift from U.S. Surge	0.8%
Extra Lift from Commodity Price Surge	0.7%
Net Result of Above:	**4.5%**
Drag from Exchange Rate Appreciation	-2.0%
Growth Forecast:	**2.5%**

Forecast by TD Economics as at February 2004

Is there a natural or "fair value" anchor for the Canadian dollar in the long run

- The trading range for the Canadian dollar over the past 3 decades, from above parity relative to the U.S. currency to a low of just above 60 U.S. cents, lends credence to one school of thought, according to which the "fair value" of the dollar is wherever markets put it at any given moment.
- Yet, there are some economic benchmarks that can be used to gauge whether markets may be missing something. One is the concept of Purchasing Power Parity (PPP) – the level of the exchange rate that would equalize the price of a representative basket of goods in different countries. Estimates of Canada's PPP are in a range of 80 to 85 U.S. cents, suggesting that the dollar is still "undervalued".
- In a 1995 paper, the C.D. Howe Institute applied the concept of the Fundamental Equilibrium Exchange Rate (FEER) to Canada – the level of the exchange rate that is consistent with full employment and a sustainable path for the current account. At the time, the FEER was pegged at 68-72 U.S. cents. Today, that value would certainly be higher, reflecting the fact that Canada is running a current account surplus despite the stronger dollar.
- The Bank of Canada has developed an explanatory equation for the exchange rate, driven principally by Canada-U.S. short-term interest rate spreads and commodity prices. It predicts a Canadian dollar around 72 U.S. cents.
- In short, economic principles can narrow the range, but not a lot. They suggest that the Canadian dollar's "fair value" is between 72 and 84 U.S. cents. However, these tools have not had a great track record as near-term predictors of the currency's path.

APPROACHES TO AN ANCHOR FOR THE DOLLAR

Market View	No anchor
Productivity Gap: Canada/U.S.	0.80-0.89
Total Labour Compensation Gap: Canada/U.S.	0.84
Purchasing Power Parity (PPP)	
Statistics Canada	0.83-0.85
OECD	0.84
IMF	0.845
Fundamental Equilibrium Exchange Rate (FEER)*	0.68-0.72
Bank of Canada Equation	0.72
Big Mac PPP (*The Economist*)	0.85
Latté PPP (*The Economist*)	0.82

* As estimated by the C.D. Howe Institute in 1995.
It would undoubtedly be higher now.

Where will the Canadian dollar go over the next year?

- Recognizing that there are two sides to every exchange rate, we first look at prospects for the U.S. currency. Investors' concerns over the so-called "twin deficits" in the U.S. will keep the U.S. dollar moving down against most flexible currencies. However, the pressure may be fairly light in 2004, as the U.S. records one of the stronger growth rates around the world and attention increasingly turns to the Federal Reserve Board, which will be raising U.S. interest rates. We expect the U.S. dollar to fall a further 5 per cent on a trade-weighted basis over the course of 2004.
- With a current account surplus, strong and rising commodity prices, fiscal balance, low inflation and sound domestic economic fundamentals, the Canadian dollar should benefit from the downward pressure on the U.S. currency. We expect the Canadian dollar to end 2004 at 79 U.S. cents.
- However, the path to that end point will be full of sharp turns. We expect the trading range over the remaining 11 months of the year to be from 74 to 82 U.S. cents. The rise above 80 U.S. cents is likely to take place during the first half of the year, before the Federal Reserve Board begins raising interest rates.
- The range of publicly-available Canadian dollar forecasts is even wider, from 73 to 90 U.S. cents. The message is clearly that it is important for businesses to consider a wide range of scenarios and examine opportunities to reduce exposure to exchange rate fluctuations.

Economic impact of the stronger loonie

- Models used by private sector forecasting firms, the Department of Finance and the Bank of Canada predict anything from a 1 to 5 percentage point annual reduction in GDP growth during the first 2 years of the

adjustment to the loonie's 20 per cent gain.

- Many forecasters are not factoring in the full extent of the downward hit predicted from their models. Some argue that many companies built their plans on the expectation that the dollar would not remain in the low 60 U.S. cent range. As a result, only part of the actual appreciation is a "shock". Further, the import content in Canadian exports has risen greatly since the last large appreciation in the late 1980s and many more companies have "financial" and "natural" hedges against currency movements. A fairly typical result is a 2 percentage point hit to real GDP growth both in 2003 and 2004.
- TD Economics expects real GDP growth in Canada for 2004 to be 2.8 per cent. In its most reduced form, this would be consistent with almost 5 per cent growth on the basis of the strong U.S. economy, low interest rates, and firm commodity prices, offset by a roughly 2 percentage point drag from the strengthening of the Canadian dollar since early 2003.
- Exporters who have little import content, such as the paper and forest products manufacturing sector, will be hit the hardest. Firms that are in tight competition with imports will also feel the blow as import prices fall. The hit will be greater for goods than services, although tourism-related sectors will feel the pain. Commodity producers will see their bottom lines squeezed by the stronger dollar, but most have experienced at least a full offset through stronger commodity prices.
- Ontario and Quebec will be hit the hardest, given the trade orientation of their large manufacturing sectors towards the United States. The resource-based provinces of the West and the Atlantic will be partially shielded by strong commodity prices and their lesser dependence upon exports to the United States.
- Weighing the 20 per cent rise in the dollar by the import share in the CPI would suggest that the appreciation should reduce consumer prices by 4 per cent. However, just as we did not witness the full extent of the pass-through from the currency depreciation of the 1990s to inflation, it is unlikely that we will see the full impact of the appreciation on the CPI. Nevertheless, the stronger dollar is an important element in our expectation that the core rate of inflation will fall as early as January 2004 to around 1.5 per cent, and remain below the Bank of Canada's target of 2 per cent until late 2005.

What should corporations be doing about the stronger dollar?

- Some corporations will require aggressive cost cutting to be competitive with a dollar in its current range. However, as the dollar is still below estimates of PPP and what would be implied by the productivity gap between Canada and the United States, on balance the adjustments will not need to be dramatic. But profit margins will be squeezed to the point that little overall corporate profit growth should be anticipated in 2004.
- Companies can shield themselves from some exchange rate volatility through hedging strategies. By using financial contracts, like forwards and options, they can essentially agree to sell U.S. dollars in the future at a specified exchange rate. Depending on the amount of expected revenues protected by the contract, the loss from future export earnings due to a stronger Canadian dollar can be offset by the gain on the sale of U.S. dollars.
- The use of financial hedging tools is spotty in the Canadian corporate world, particularly for small and medium-sized enterprises. It may be that few anticipated such a dramatic rise in the Canadian dollar. It may be a lack of awareness of the available hedging strategies. Or, it could be a misinterpretation of hedging as a form of speculation, rather than as a form of insurance. Nevertheless, the recent and expected future volatility in the exchange rate is a case study in why hedging should be considered by any export-oriented business, regardless of size. It must be noted, however, that hedged or not, the company must still ultimately be able to compete at whatever level of the dollar prevails. What hedging ultimately provides is additional time to adjust to the exchange rate swings.

What should investors do about the stronger loonie?

- As the cap on foreign property in registered savings plans has been lifted from 20 to 30 per cent, many Canadians have been increasing the share of their portfolios invested outside of Canada. About 60 per cent of the foreign allocation is in the U.S. market. Many in-

vestors probably gave little thought to exchange rate considerations. To the extent that they did, they may have considered that the steady decline in the Canadian dollar during much of the 1990s just made investing in the U.S. that much more attractive.

- The sudden change in the relative values of the Canadian and U.S. dollars has no doubt come as a shock to many Canadian investors. It has meant that much of the stellar return in 2003 on U.S. stock markets has been offset by the loonie's appreciation.
- The message is that exchange rate movements must become an important consideration in the investment decisions of Canadians. The U.S. economy will outperform Canada's this year, and as a result, U.S. equity markets may do better than ours. But a 5 per cent decline in the value of the U.S. dollar against the Canadian dollar could wipe out any advantage. Expectations for a further strengthening in the Canadian dollar may also make Canadian bonds more attractive than their U.S. counterparts, limiting the rise in Canadian bond yields in the coming year.

What are the implications of the stronger loonie for monetary policy?

- As the stronger Canadian dollar exerts downward pressure on inflation it is leading to lower interest rates than would otherwise be the case.
- The Bank of Canada, like TD Economics, feels that at the levels of interest rates prevailing at the beginning of 2004, there would be a shortfall between actual and potential output well into 2005. As a result, the core rate of inflation will be below the 2 per cent target until late next year. That is why the Bank of Canada cut its overnight rate by 25 basis points on January 20th. We believe that the Bank will also cut its policy rate on March 2nd.
- The Bank of Canada's interest-rate policy beyond that point will depend on incoming indicators of economic growth and inflation. If the data are consistent with the latest Bank of Canada forecasts – which are uncannily similar to those of TD Economics – we expect that the Bank will then be on hold until late 2004, at which point they will gradually start to move interest rates higher. On the other hand, if growth appears set to fall below the 3 per cent pace anticipated for the first half of 2004 and the 3 ½ per cent clip expected for the second half of 2004, and/or disinflation pressures appear stronger than expected, the Bank will likely cut rates again after March. The extent of the downside risk is probably another 50 basis points beyond March, taking the overnight rate below the low point of 2.0 per cent recorded in 2001.
- The path of the Canadian dollar will continue to influence the Bank of Canada's interest-rate decisions, not because the Bank is targeting any particular level for the Canadian dollar, but because the exchange rate is an important determinant of Canada's inflation rate. If sustained for any meaningful period of time, a move above 80 U.S. cents would likely bring further rate cuts beyond March, as this would represent another impediment to inflation returning to the Bank's target.

What are the implications of the stronger loonie for fiscal policy?

- The federal government finds itself in the tightest fiscal squeeze since 1997-98 and many provinces have swung back into deficit. The stronger Canadian dollar bears part of the blame, although we cannot resist the dig that several governments were warned that if they let their spending continue to rise rapidly, they would find themselves vulnerable should the economy soften.
- The tax bases of all governments have been weakened by the hit from the dollar on both real output and price levels. Everything else equal, the dollar's impact on nominal income would lower both federal and total provincial revenues by about $10 billion each for 2004-05. Again, the manufacturing powerhouses of Ontario and Quebec would be hit particularly hard. Of course there is a considerable offset from the stronger U.S. economy, higher commodity prices, lower interest rates, and particularly for the federal government and Ontario, high profits in the financial services industry.

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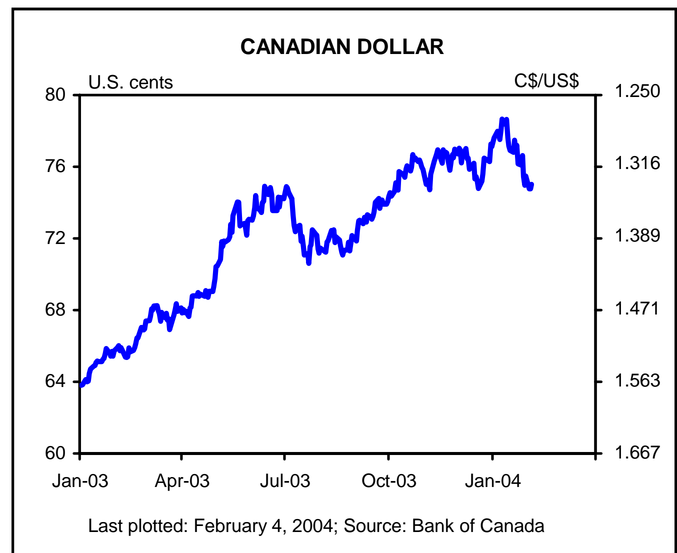
The unprecedented rally in the Canadian dollar was arguably *the* economic event of 2003, and its consequences for the Canadian economy will be a dominant theme in 2004. From roughly 63 U.S. cents at the end of 2002, the currency rocketed to more than 78 U.S. cents before pulling back to slightly above the 75 U.S. cent mark. And, not surprisingly, that dramatic appreciation generated concerns about the impact of the higher value of the currency on the overall economy, on specific industry sectors, on investors' portfolio returns, and on monetary and fiscal policy.

The problem with the loonie's flight is not the level to which it has risen *per se*. It has been in 75-80 cent territory before. In fact, for the better part of the 1980s and a good part of the 1990s, the loonie was close to, or above, the current level. And, with the exception of the early 1990s when the loonie surged to almost 90 U.S. cents, the exchange rate did not appear to be much of a roadblock for Canadian companies.

Moreover, the real appreciation in the value of the dollar is less than it may first appear. The nominal exchange

Contents

Introduction 1
Long-term value of the Canadian dollar 2
Short-term outlook for the Canadian dollar 7
Economic fallout from the stronger Canadian dollar 11
Corporate responses to the stronger Canadian dollar 19
Implications for monetary policy 22
Fiscal impacts from a stronger dollar 25
High-flying loonie will impact investors 27



Last plotted: February 4, 2004; Source: Bank of Canada

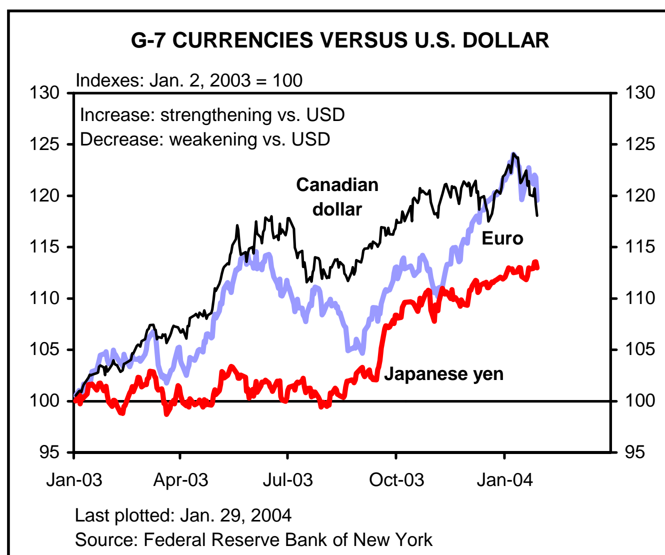
rate tells only part of the story, because it does not account for differences in relative price levels across countries – which is just as important for competitiveness. That is captured by the real exchange rate – that is, the exchange rate adjusted for relative cross-border price levels. By this measure, the Canadian dollar is still lower than it was at any time during the 1980s, and is lower than at any time during the first seven years of the 1990s as well. In other words, the currency today is only high relative to the exceptionally low levels of the past few years.

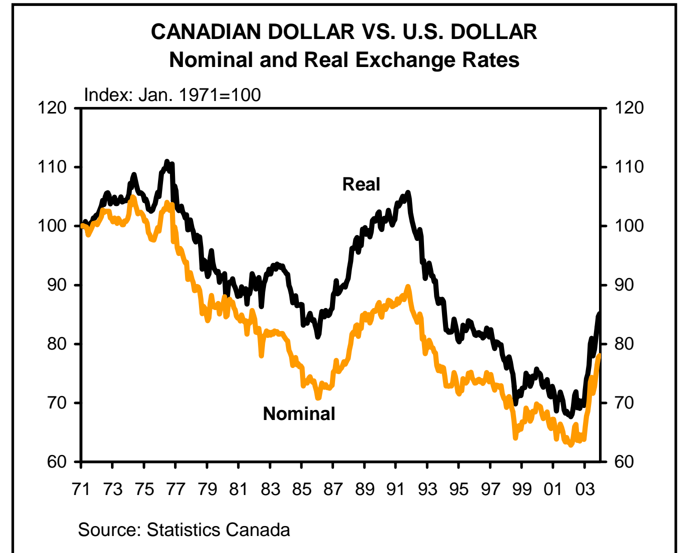
So, it is not the level of the exchange rate that is the challenge, but rather the *speed* at which the currency has appreciated. Never before have we witnessed a 20 per cent appreciation in the currency's nominal value over such a short time span. Granted, the loonie has seen upward movements of more than 20 per cent before. During the

period from 1986 to 1991, the Canadian dollar went from less than 70 U.S. cents to almost 90 U.S. cents – a gain of almost 30 per cent. However, that occurred over a five-year period. This time, the bulk of the adjustment occurred within six months, with the currency building gradually on its gains in the following six months. And, because of the short time span – just 6 to 12 months, which is too brief a period in which to see any meaningful change in relative price levels – virtually all of the movement in the nominal exchange rate has translated into an equivalent rise in the real exchange rate. Without doubt, this has created a whole new reality for Canadian consumers, businesses and investors – one with which they will be grappling for some time to come.

Some may object that this is not really a story of Canadian dollar strength, but rather one of U.S. dollar weakness. To some extent, that is true. Most other major currencies also appreciated against the U.S. dollar last year – and some by more than the Canadian dollar. For example, the Australian dollar appreciated by 34 per cent in 2003, the New Zealand dollar was up by more than 25 per cent, and, although the euro's gain fell short of the loonie's in 2003, the European common currency has rebounded by 52 per cent from its low in October 2000. Consequently, the loonie is actually weaker now relative to the euro than it was in early 2002. So, while there are some home-grown factors that helped propel the loonie higher in 2003, by and large, it is against the U.S. dollar that the currency has taken flight.

All in all, however, it is the Canada-U.S. dollar exchange rate that matters, because Canada's trade is overwhelmingly with the United States. Regardless of what happened to the exchange rates with the other currencies, the Canadian dollar's gains against its U.S. counterpart will require significant adjustments – which raises a host of other questions. Foremost, what will be the fallout from a stronger dollar on the economy and various industries? What are the implications for monetary and fiscal policy? And, how will investors be affected by a higher exchange rate? Those are the questions that we will attempt to answer in this report. But first, we need to address where the Canadian dollar is headed from here, and the best starting point is to anchor the analysis with an assessment of the long-term fair value of the loonie.





I. Long-term value of the Canadian dollar

Dramatic swings in the Canadian dollar over the last several decades have created considerable debate about the Canadian dollar's "fair value". From parity with the U.S. dollar in the early 1970s, the Canadian dollar gradually lost about 20 per cent of its value by the time the 1980s rolled around. After temporarily dipping below the 70 U.S. cent threshold in the mid-1980s, it surged to almost 90 U.S. cents only a few years later, as the Bank of Canada aggressively tightened monetary policy. The Asian financial crisis in 1997-98 sent the loonie tumbling back below the 70-cent threshold. More recently – in October 2002 – it reached an all-time low close of 61.90 U.S. cents. Then, in early 2003, the currency snapped back with a vengeance, climbing by more than 15 per cent in less than

6 months. Building on these gains, it reached a recent peak of 78.80 U.S. cents in early January 2004. Throughout these gyrations, financial market pundits and economists have debated what represents a sustainable long-run exchange rate. And, while there was a consensus that the loonie was "undervalued" below 63 U.S. cents, there was no agreement on the currency's fair value. And, that is not surprising because in economic theory there is no universally accepted measure of long-term equilibrium for the exchange rate.

Approach 1: There is no long-run equilibrium

The simplest view – and one that does have its proponents – is that a currency is worth whatever foreign exchange markets say it is worth. After all, the function of any price set in free markets is to equilibrate supply and demand, and since the exchange rate is nothing more than another price, it is always at its fair value as long as foreign-exchange markets are free to function without impediments. In the case of fixed-exchange-rate regimes, it is obvious that currencies can be misaligned with their fundamentals, and that this misalignment will be reflected in an excess supply of, or excess demand for, a currency, which must be dealt with by the central bank. But, in the case of flexible exchange rates, relative currency values are supposed to move in response to economic shocks, and in so doing, prevent those shocks from spilling over to other economic factors, such as real wages or employment. For example, during the Asian financial crisis, the Canadian dollar fell in response to plummeting commodity prices. That helped cushion the fallout on Canada's commodity exporters. Had the loonie not declined – through direct central bank intervention to prop up the currency, for example – the consequences for the Canadian economy would have been more severe. So, the Canadian dollar did exactly what it should have done under the circumstances. The main point is that since the Canadian economy is always being buffeted by various shocks, there is no long-term fair value for the currency and any attempt to intervene to correct a perceived "disequilibria" only creates more problems.

But, economic fundamentals do provide a anchor

Although the bulk of the view presented above is valid, it is important to realize that the exchange rate is not just any other price. For one, the currency is supplied by central banks, and therefore, its value is directly tied to the course of monetary policy. Moreover, demand for the currency is in large part a derived demand – people do not purchase Canadian dollars for the sake of holding loonies, but because they need the currency to purchase exports and imports of goods, services and financial instruments. And, the currency will adjust to equilibrate imbalances in the external balance of payments. These imbalances may not be sustainable in the long term, requiring – possibly among other things – exchange-rate adjustments to help correct them. Even if it is true that the currency is at its unimpeded market price, its current level may not be sustainable. It is in that sense that one can talk about a currency being "over" or "under" valued at any given point in time.

One good example is the steady widening in the U.S. current account deficit during the 1990s – a situation that has still not been resolved. It was fairly obvious that the current account shortfall could not continue to build indefinitely and that, eventually, a currency realignment would need to occur. Yet, the dollar did not begin to decline until 2002. In that sense, one can say that during this period the U.S. dollar became "overvalued" and the Canadian dollar, euro, and most other major currencies "undervalued", even though they were freely market-determined.

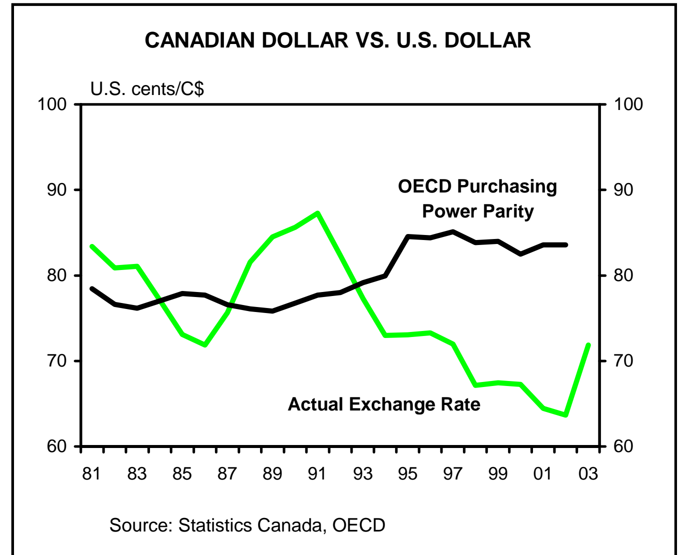
A similar argument could be applied to the sustainability of monetary and fiscal policies. If a given course of policy has led to a movement in the currency, but those policies cannot continue in the long run, then a "fair value" for the currency would be one that takes into account a shift in the policy settings. For example, the sharp tightening in

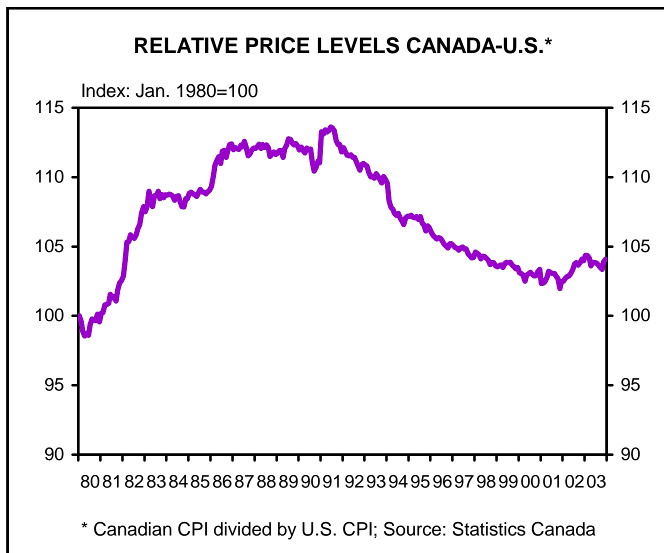
monetary policy and the resulting massive positive interest-rate spreads of the early 1990s in Canada, which pushed the exchange rate towards the 90 U.S. cent threshold, were not sustainable. In this sense, the Canadian dollar became "overvalued". Similarly, the fiscal policy framework that spooked international investors and sent the Canadian dollar tumbling in the mid-1990s was not sustainable – accordingly, one could argue that the loonie became "undervalued".

Another take on valuation refers to situations where there is a clear and systematic link between a set of economic variables and the exchange rate. In cases where the value of the currency diverges too far from the levels implied by the underlying variables, one can also speak of currency misalignment. With respect to the Canadian dollar, there is known to be a strong correlation between commodity prices and the exchange rate. One could argue that too large a divergence between the values implied by the underlying variable and the level of the exchange rate could also be seen as implying over or under valuation. In a sense, this is not truly different from the issue of sustainability – the issue is really whether the exchange rate can systematically diverge from its implied path or not.

Approach 2: Purchasing Power Parity (PPP)

The most common and popular measure of a currency's fair value is known as Purchasing Power Parity (PPP). The idea behind PPP is that a currency's value relative to another currency should reflect relative price levels in the two countries involved. More specifically, the "strong" version of PPP suggests that the "fair value" of an exchange rate is one that equates the price of a basket of goods and services between two countries, when expressed in a common currency.





The reasoning is straightforward. If international trade is unimpeded, the prices of individual goods should be equal when expressed in a common currency – otherwise, the price difference would be arbitraged away. Consequently, the exchange rate should be equal to the ratio of domestic to foreign price levels. As an aside, there is also a "monetary" interpretation of PPP which holds that, since the exchange rate is by definition the relative price of two currencies, and since the price of any one currency is just the inverse of the general price level, the exchange rate must equal the ratio of domestic to foreign prices. On the surface, this does have an intuitive appeal. For example, if the exchange rate is at its "fair value", it should cost the same to purchase a good in Canada, or to convert the amount into U.S dollars and purchase the same good in the United States.

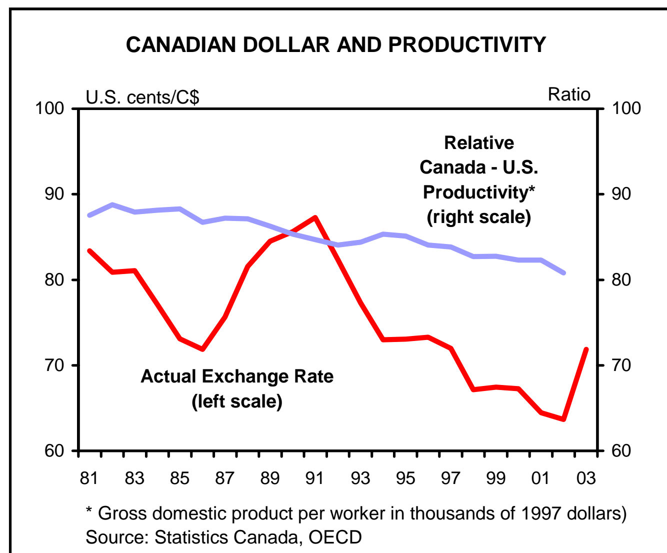
Unfortunately, PPP has a very weak record. Currencies often deviate from their PPP values for extended periods of time. Only over very long time spans is there anything even remotely resembling a tendency for the exchange rate to revert to the level implied by PPP. In the case of Canada, for example, the exchange rate has been systematically below its PPP level for the past 10 years, and often significantly so. And, the nominal exchange rate and the PPP level often head in opposite directions.

For example, while the Canadian dollar was depreciating during the better part of the 1990s, the PPP level was appreciating, because Canadian inflation was below that of in the United States. The recent rally in the Canadian dollar has dramatically narrowed the gap between the nominal exchange rate and the estimate of PPP. However, few would suggest that the Canadian dollar is bound to appreciate solely because current estimates of PPP generally imply a "fair value" exchange rate that is above its current level.

That begs the question – what do estimates of PPP look like? Interestingly, they tend to be rather tightly bunched at about 82-85 U.S. cents. The OECD estimate is 84 U.S. cents. One Statistics Canada estimate has it at about 83 U.S. cents, while the other puts it at 85 U.S. cents. The IMF puts the dollar's PPP value at 84.5 U.S. cents. Even off-the-wall stabs at PPP-type relationships put the currency's "fair value" in the same ballpark. The Economist magazine's Big Mac Index compares the price of a Big Mac across countries, suggesting that since it is a homogeneous product, it should cost the same from one country to the next. The Canadian dollar's PPP value according to the Big-Mac index is 84.8 U.S. cents. A similar approach, applied to the price of a Starbucks Latte – also initiated by The Economist magazine – sets it at 82 U.S. cents.

Surprisingly, even relative levels of productivity and labour costs – which some see as providing a peek into the fundamentals that drive relative price levels over the long haul – tell a similar story. For example, data compiled by the Centre for the Study of Living Standards establish that

CANADIAN DOLLAR AND PRODUCTIVITY



* Gross domestic product per worker in thousands of 1997 dollars)
Source: Statistics Canada, OECD

IS THERE AN ANCHOR FOR THE DOLLAR?

Market View	No anchor
Productivity Gap: Canada/U.S.	0.80-0.89
Total Labour Compensation Gap: Canada/U.S.	0.84
Purchasing Power Parity (PPP)	
Statistics Canada	0.83-0.85
OECD	0.84
IMF	0.845
Fundamental Equilibrium Exchange Rate (FEER)* Bank of Canada Equation	0.68-0.72
Big Mac PPP (*The Economist*)	0.72
Latté PPP (*The Economist*)	0.82

* As estimated by the C.D. Howe Institute in 1995. It would undoubtedly be higher now.

Canada's level of labour productivity – real GDP per hour worked – is between 80 and 89 per cent of that of the U.S., depending on the measures used. Similarly, U.S. total labour compensation costs as estimated by the U.S. Bureau of Labour Statistics in U.S. dollars are 84 per cent of comparable Canadian compensation costs expressed in Canadian dollars. In other words, compensation costs would be equal at an exchange rate of about 84 U.S cents.

Given its intuitive appeal, why does PPP not hold? Perhaps the most obvious reason is that it implies that the real exchange rate is constant. That may be a fair assumption when the only adjustments required in the economy are to shocks that are purely monetary in nature – for example, differences in monetary policy that produce divergences in inflation rates across countries. But often, the real exchange rate needs to adjust in response to real shocks. The sharp depreciation in the Canadian dollar during the 1990s was also a real depreciation, with the bulk of it coming through the nominal exchange rate. In fact, of the more than 34 per cent depreciation in Canada's real exchange rate between late 1991 – when it hit its peak – and late 2002, less than 8 percentage points came from Canada's lower rate of inflation.

There are also other reasons why one would not expect PPP to hold. First, many goods and services that are included in broad price indices are not traded, or even tradable, and therefore, are not subjected to cross-border price equalization. Second, the composition of the price indi-

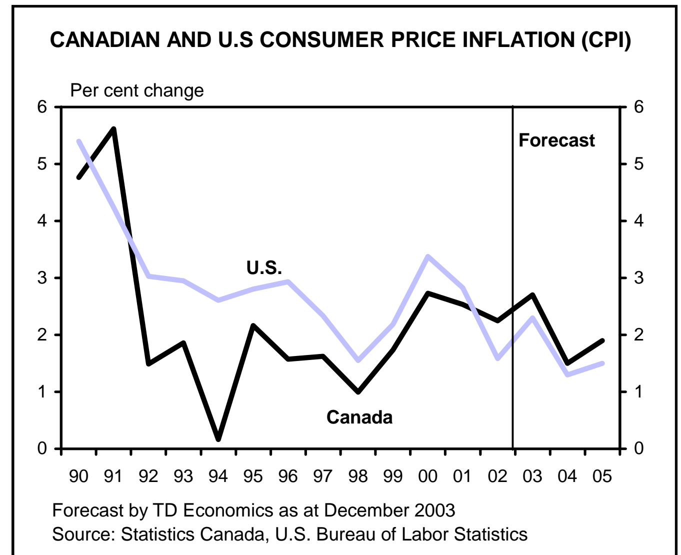
ces may differ across countries, so that even if the prices of individual goods were equalized in common currency terms, the broad indices would not be. And, finally, there may be tariffs, taxes and transportation costs that prevent prices from equalizing across borders.

One attempt to get around some of these problems has been to use relative unit labour costs rather than domestic price indices as a gauge of competitiveness, on the assumption that exchange rates adjust to help maintain a country's competitive stance. In other words, a country that experiences sharply rising unit labour costs will see its currency depreciate to maintain its competitive position. Unfortunately, relative unit labour costs have not been much better in explaining movements in the Canadian dollar, even over the longer term. Indeed, for the better part of the 1990s, Canadian unit labour costs, like the CPI, were rising more slowly than in the U.S., and the loonie was depreciating nonetheless.

Some have even gone as far as to use relative unit labour costs in the manufacturing sector alone to establish a "fair value" for the Canadian dollar. However, there are huge problems with this approach. For one, manufacturing covers only part of Canada's tradable goods sector. Limiting the focus to manufacturing ignores the bulk of the resource sector, which accounts for a large share of Canada's exports. In addition, aggregate measures of relative unit labour costs in manufacturing are heavily skewed by a few high-productivity sectors in the U.S. – high-tech comes to mind – that are weighted more heavily south of the border. In fact, aside from those sectors, Canada's productivity performance in manufacturing is not meaningfully out of line with that of the United States.

Finally, even the "weak" version of PPP – which implies that *changes* in the exchange rate should follow relative *inflation rates* – does not tend to hold except across very long time spans. Again, Canada is a case in point. As mentioned above, Canada's inflation rate has been lower, on average, than that of the United States over the ten years to 2002 – 2.5 per cent for the U.S. and 1.6 per cent for Canada. However, the currency, instead of appreciating, actually went the wrong way.

All told, while PPP may have considerable intuitive appeal, it is of little practical use in predicting where exchange rates are headed.



Approach 3: Fundamental Equilibrium Exchange Rate

Another attempt to come to grips with the idea of a currency's "fair value" is the concept of a Fundamental Equilibrium Exchange Rate (FEER). In a 1995 paper by the C.D. Howe Institute[1], the equilibrium value of the Canadian dollar was assessed at between 68 and 72 U.S. cents – a level that certainly appears more reasonable than the PPP rate of 82-85 U.S. cents, given the loonie's performance over the past several years.

The idea behind the FEER is close to the one of sustainability described above. More specifically, it describes a level for the exchange rate that achieves both internal and external balance for the economy. In practical terms, that implies an exchange rate that is compatible with an economy operating at full employment and that puts the current account on a path that is sustainable over the long haul.

It should be stressed that the concept of a FEER is not constant, and current economic conditions would almost certainly yield a level of the exchange rate that is higher than the 68-72 U.S. cents estimated by the C.D. Howe authors. In 1995, when the C.D. Howe paper was published, Canada was still running an external deficit and appeared far away from full employment. Today, Canada is running a sizeable current account surplus, and continues to do so even in the face of the sharp appreciation of the Canadian dollar. In all likelihood, an even stronger currency would still be compatible with a sustainable external position in a context of full employment. The im-

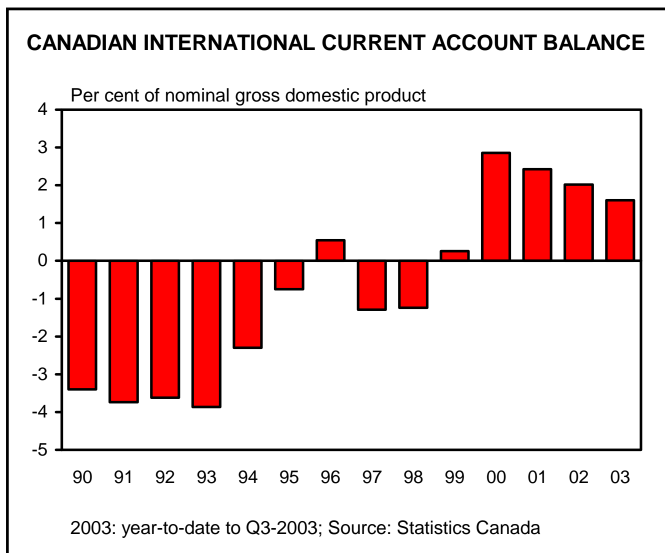
plication is that the "fair value" of the Canadian dollar implied by FEER is likely above 75 U.S. cents, though probably not as high as the level implied by PPP.

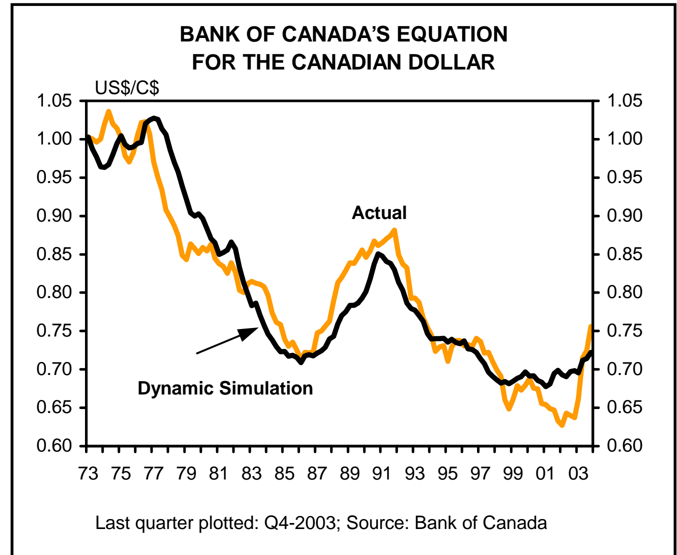
Approach 4: Bank of Canada equation

Another interesting benchmark is an equation estimated by the Bank of Canada, which found that two variables – non-energy commodity prices and Canada-U.S. short term interest rate spreads – have done a remarkable job in explaining the Canadian dollar's trend over the past three decades[2]. Interestingly, the implied value for the Canadian dollar today according to the Bank's equation is actually below current levels, at close to 72 U.S. cents. In other words, the sharp appreciation in the currency since the beginning of last year cannot be fully explained by commodity prices and interest-rate spreads alone.

Overall assessment

In sum, there does not appear to be any kind of consensus generated by the various approaches to gauging the Canadian dollar's fair value. And, in any event, no matter what measure one wishes to use, it would not be constant through time. While PPP would imply a much stronger currency, it is not of much use in forecasting the direction of exchange rates. Although we have not calculated a current FEER for Canada, in all likelihood, it would be above 75 U.S. cents, but probably not as high as the value implied by PPP. Finally, the Bank of Canada equation points to a slightly weaker predicted value for the currency. As a result, the best assessment might be that the fair value of the Canadian dollar lies somewhere in a range





of 72 to 84 U.S. cents. But, since history tells us that exchange rates can deviate from their "fair values" for a considerable period of time, these estimates do not provide much guidance about the short-term direction of the exchange rate from current levels. Still, the fact that the currency is now within that range goes a long way towards explaining why there is no longer a near-unanimous view as to the likely direction of the currency's moves. So, where is the Canadian dollar headed from here?

II. Short-term outlook for the Canadian dollar

When the Canadian dollar was at 63 U.S. cents, there was a clear consensus that the prevailing exchange rate did not reflect the currency's underlying positive fundamentals and, accordingly, virtually all forecasts predicted that the currency would eventually strengthen. However, the extent of the rally in 2003 exceeded all forecasts, leaving economists and market pundits deeply divided on the future direction of the loonie. Indeed, the current foreign exchange predictions from Bay Street span a low of 73 U.S. cents to a high of 90 U.S. cents at the end of this year – an extremely wide band that provides virtually no guidance to corporate planners and currency traders. Oddly enough, most of the underlying macroeconomic forecasts are broadly similar, making it unclear as to why there are such competing views.

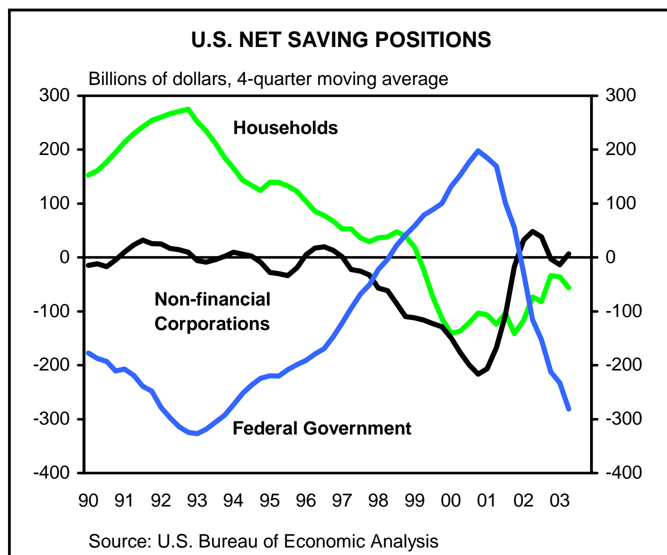
The explanation is that contradictory forces will buffet the currency in the coming year and there is no agreement over which will have the dominant effect. Several factors are likely to exert upward pressure on the exchange rate.

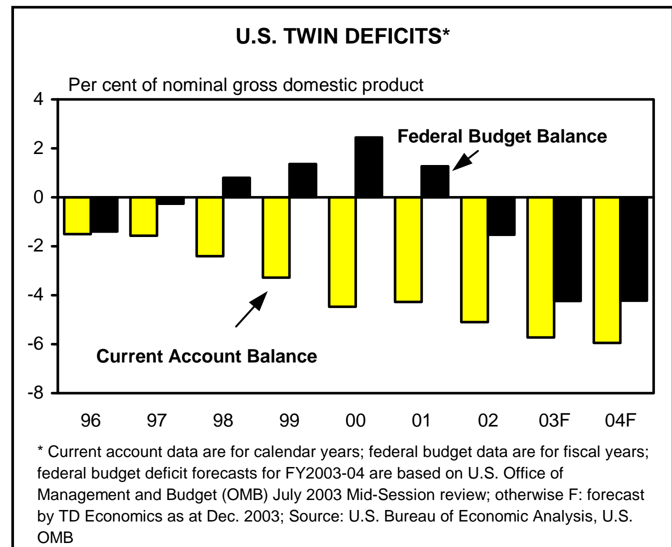
First, the U.S. dollar is likely to weaken further. Second, a strengthening global economy is likely to keep non-energy commodity prices on an upward trend. Third, Canada's healthy domestic economic fundamentals, including a current account surplus, total government sector finances that are roughly in balance, low inflation and rising corporate profits are supportive. Despite these positive forces, the currency will face a major hurdle from narrowing Canada-U.S. interest rate spreads, which make the Canadian dollar less attractive to investors. Let us discuss each in turn.

U.S. dollar to weaken, but only modestly

The key driver behind the 20 per cent decline in the trade-weighted U.S. dollar has been the massive U.S. international trade deficit. This has helped to produce an unsustainably large current account deficit, which currently stands at more than 5 per cent of GDP. And, although the depreciation in the greenback will help to boost the competitiveness of U.S. exports, while simultaneously dampening U.S. imports, the decline in the currency to date will not be sufficient to turn the current account imbalance around. Specifically, the U.S. is poised to lead the rest of the major industrialized countries in terms of economic growth this year. Accordingly, rising U.S. demand for imports, albeit more expensive imports, will significantly limit any improvement in the U.S. current account deficit. Meanwhile, a gradual improvement in economic conditions abroad will provide only a moderate lift to U.S. exports.

And, the weakness in the U.S. dollar will not solve the



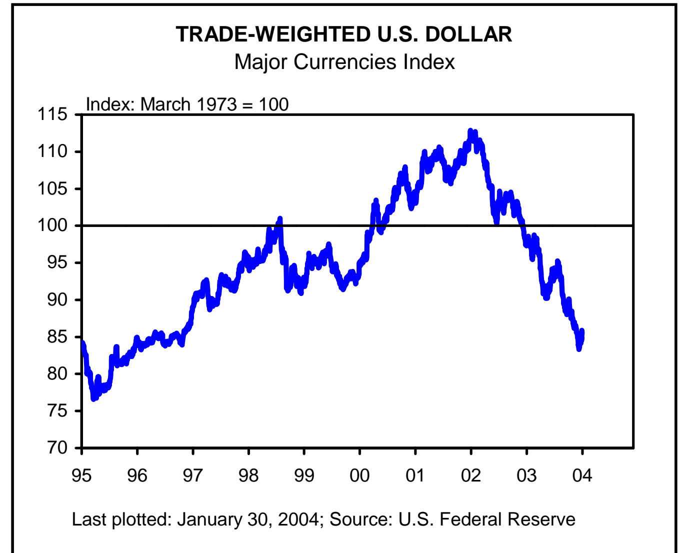


root of the current account problem. The imbalance is the product of insufficient saving by America. In the late 1990s, the current account deficit ballooned in response to private sector dissaving, related to an investment bubble that saw U.S. corporations and U.S. households live beyond their means. As a result, in order to fund the excessive investment, America had to sell financial and real assets to the rest of the world, resulting in a dramatic increase in net foreign indebtedness. The 2001 recession and subsequent slow recovery have seen an improvement in private sector saving, but at a huge fiscal cost. In order to help get the economy back on its feet, the U.S. federal and state governments have run up a record fiscal deficit. So, today the fiscal deficit lies at the core of the current account deficit and there is little chance of much improvement on this front in 2004 and 2005. (For a more in-depth discussion of the relationship between the current account and the fiscal balance refer to the TD Economics Topic Paper, *U.S. Dollar Correction,* December 9, 2003).

Given that the current account and fiscal deficits will both average close to 5 per cent of GDP this year and next, financial market sentiment towards the U.S. dollar will likely remain negative. However, in our opinion, the scope of the future depreciation in the U.S. currency is likely to be much more limited than in 2003. Given the already strong gains made by many foreign currencies vis-à-vis the greenback, a further similar appreciation from current levels would create significant negative economic effects abroad, which, in turn, would likely prompt a response by non-U.S. monetary authorities to dampen the movements in their currencies' exchange rates. Moreover, the eco-

nomic drag created by the appreciation would likely curtail corporate profit growth and lead to lower interest rates in the countries with currencies appreciating against the U.S. dollar, eventually reversing the direction of capital flows and exchange rates. And, given the expected outperformance by the U.S. economy this year, America should not run into significant difficulty financing its current account and fiscal deficits. Indeed, strong corporate profit growth, combined with rising interest rates, should attract inflows of foreign capital. (For a more in-depth discussion, refer to TD Economics Topic Paper *U.S. Dollar Correction: part II, Global Currency Outlook,* December 19, 2003).

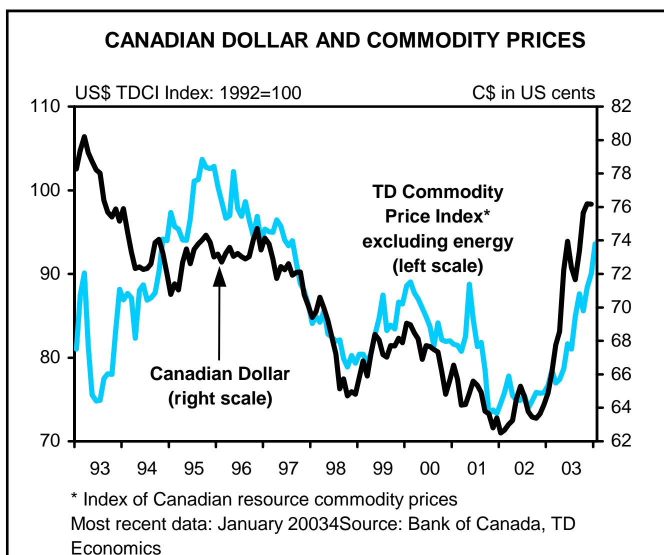
The implication is that while the U.S. dollar will weaken, it is likely to depreciate by only 5 per cent or so on a trade-weighted basis in the coming year, with a similar moderate loss expected to occur in 2005 as well. All of this suggests that the Canadian dollar will continue to receive a lift from further weakness in the U.S. dollar, but the impact will be relatively modest.

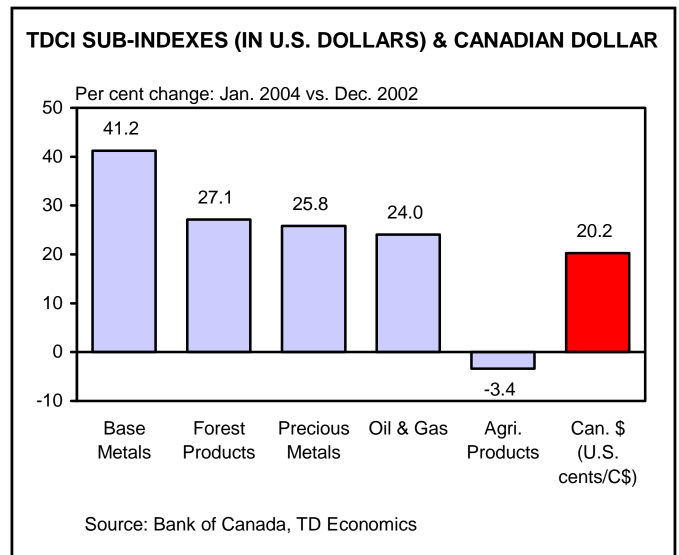


Rising commodity prices supportive to loonie

The Canadian dollar should also receive a boost from rising non-energy commodity prices. Although Canada is not a commodity-based economy, international investors do tend to view the loonie as a commodity play. This is not entirely surprising given that one thing that differentiates Canada from many other countries is its abundance of natural resources. Accordingly, the Canadian dollar does tend to track trends in commodity prices quite closely. Energy prices are usually excluded from this discussion because they are more volatile and more affected by geopolitics than other commodities. Moreover, the impact of higher energy prices on the Canadian economy is mixed, as they are boon to the oil and gas sector, but a negative for consumers and industry. Consequently, statistical models show a tighter relationship between the Canadian dollar and non-energy commodity prices. To illustrate this close correlation, the Canadian dollar rallied by 18.8 per cent from its average value in December 2001 to its average in December 2003, while over the same time frame the TD Commodity Price Index, excluding energy products, rose by 18.7 per cent.

Looking ahead, the outlook is positive for non-energy commodity prices. Generally tight supply conditions and





rising demand should push prices higher. Specifically, base metals, forest products and precious metals are all expected to record solid price gains this year. However, the pace of the increase will be far more moderate than last year. Overall, the non-energy commodity price index is expected to advance by roughly 6 per cent in 2004.

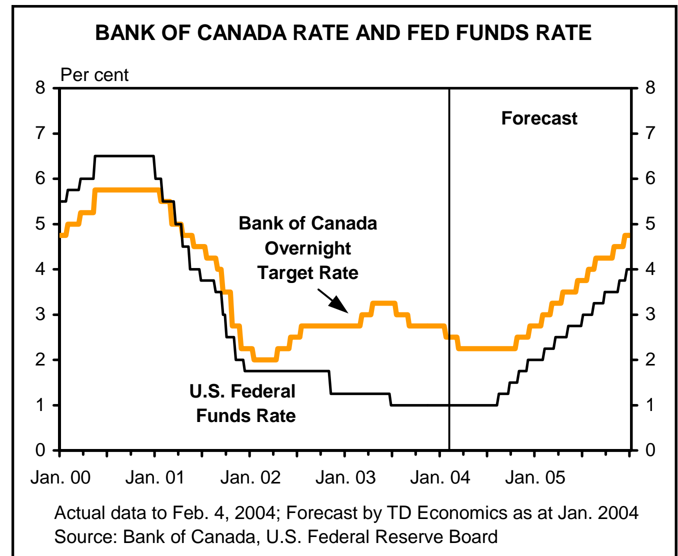
Healthy domestic economy is also favourable to C$

The domestic economic fundamentals behind the Canadian dollar are also broadly supportive. Canada will continue to run a significant current account surplus and a balanced all-government fiscal position, contrasting with the massive deficits south of the border. Canadian inflation will remain below 2 per cent until well into 2005. And, while exporters will struggle with the stronger exchange rate, corporate profits are still expected to grow by 5 per cent in the coming year. Although these fundamentals are unlikely to fuel a further rally in the currency, they are likely to help the loonie retain its recent gains.

Narrowing interest rate spreads will be a major hurdle

Having said all of that, the Canadian dollar is now starting to encounter some serious headwinds from narrowing short-term interest rate spreads. The Bank of Canada cut its benchmark overnight target rate by 25 basis points on January 20th, and is expected to deliver a further quarter point cut on March 2nd. Meanwhile, the powerful acceleration in U.S. economic growth is likely to lead the U.S. Federal Reserve to start tightening monetary policy before the Bank of Canada in the second half of 2004. As a result, short-term interest rate spreads are expected to narrow by a further 75 basis points this year. The question is how much of an impact this will have on the Canadian dollar.

The work conducted at the Bank of Canada can help to shed some light on this. According to the Bank's aforementioned equation for the Canadian dollar, a sustained 100 basis-point increase in short-term interest-rate spreads would increase the value of the Canadian dollar by 2.5 per cent over a one-year period, all else being equal. That amounts to almost 2 U.S. cents, given the currency's current level. If the increase in the spread is sustained over a much longer period of time, the currency would converge to a level 6 to 7 per cent higher after about 10 years. Applying this relationship implies that the expected 75 basis-point narrowing in spreads this year would shave approximately 1½ U.S. cents off the value of the Canadian dollar over a one-year period, relative to where it otherwise would have been.



Actual data to Feb. 4, 2004; Forecast by TD Economics as at Jan. 2004
Source: Bank of Canada, U.S. Federal Reserve Board

Canadian dollar to float in a range of 74 to 82 U.S. cents

So, there will be several conflicting forces impacting the Canadian dollar in the months ahead. And, correspondingly, predicting the short-term path of the currency is almost impossible. This is best illustrated by the recent performance of the loonie, which has seen it whipsaw from below 75 U.S. cents in mid-December to almost 79 U.S. cents in early January, only to give up those gains in the subsequent weeks. At some point this year, the currency could easily rally to above 80 U.S. cents on U.S. dollar weakness and strength in commodity prices. But, the gains are vulnerable to the fallout from narrowing interest rate spreads. For our base case forecast, we have a year-end target of 79 U.S. cents, with a higher than normal degree of uncertainty over the path taken to reaching that point.

Forecasts predicting a larger and more sustained upward move are primarily based upon the view that the U.S. dollar will weaken by more than 5 per cent and that the depreciation in the U.S. dollar will be just as much a boon to the Canadian dollar in 2004 as in 2003. Meanwhile, forecasts predicting a drop towards 73 U.S. cents are based upon the view that the Canadian dollar has already overshot its fundamentals and assume that the narrowing interest rate spreads will lead to a pullback in the exchange rate. Overall, we are comfortable talking about the Canadian dollar trading in a range of 74 to 82 U.S. cents over the next two years – which certainly builds a case for busi-

nesses to consider hedging against the volatility of exchange rate movements. Regardless, one key main message is that a stronger Canadian dollar is here to stay. The next issue is the economic fallout from the past and future trends in the loonie.

III. Economic fallout from the stronger Canadian dollar

So, how is the impact of the Canadian dollar's appreciation on the economy likely to play out? Not only is the extent to which the loonie will continue to gain ground highly uncertain, but there is also a high degree of uncertainty surrounding the ultimate economic impact of the currency's flight. It is obvious that the loonie's gains have already been a significant drag on Canadian economic growth. The real issue is how much is left to come. And, in that regard, there is a wide range of views, from the relatively optimistic take that the Bank of Canada had until recently, to others who have been definitely less sanguine.

Given that Canada has had a floating currency for decades, it is reasonable to ask why the fallout from the currency appreciation is uncertain. First, the loonie has never gained ground at this speed, and therefore, historical precedents are of limited value in assessing the economic outlook. Second, the structure of the Canadian economy has evolved enough over the past fifteen years, with the rapid pace of expansion in two-way trade, to change traditional relationships between the exchange rate and economic growth. Finally, with the Canadian dollar massively undervalued by just about any criterion over the past few years, businesses were keenly aware that the loonie would eventually take flight, and many did plan for a stronger dollar, at least to some extent. That is not to say that they have been shielded from the currency's gains. However, the fallout will not be the same as if the stronger dollar had come as a complete and utter surprise.

In addition, it is important to distinguish between short-term effects – which are clearly negative – and the longer-term impact, which will most likely prove to be a positive one for the Canadian economy.

What are the models saying?

The key issue is what the full impact of the Canadian dollar's appreciation will ultimately be. Unfortunately, as mentioned above, economists are flying in a fair amount of fog this time around. Nonetheless, traditional economic models can provide a good benchmark. And, not surprisingly, the effects are large. In fact, if taken at face value, they are large enough to be rather alarming.

According to the Federal Department of Finance, a 1 per cent increase in the Canada-U.S. exchange rate reduces Canadian real GDP growth by 0.1 percentage points over five quarters. Therefore, a 20 per cent gain in the loonie's value would shave 2 full percentage points off economic growth over a 5-quarter period. Or, alternatively, it would reduce the annualized pace of GDP growth by 1.6 percentage points – hardly a trivial amount.

The "traditional" reading of the Bank of Canada's models is even more severe. According to the central bank, a 1 per cent appreciation in the exchange rate reduces real GDP growth by 0.3 percentage points over a 2-year period. Given the extent of the Canadian dollar's recent gains, that would amount to a 6 percentage point bite out of GDP growth over a 2-year period, or 3 percentage points per year. More recently, however – and probably because of some of the offsetting factors mentioned below – the Bank has trimmed back its estimate. For example, there has been talk of a 0.2-0.3 percentage point hit over a 2-3 year period, which would put the annual impact anywhere between 1.3 and 3.0 per cent. Bank of Canada Governor Dodge is also on record as saying that the impact would be 0.1-0.2 percentage points over a two-year period, which amounts to a 1-2 percentage point annual hit to GDP. But at the same time, the January *Update* to the Bank's *Monetary Policy Report* did indicate that the fallout from the loonie's rise has been somewhat larger than it had been anticipating – which suggests that the bottom end of those estimates may be too low.

Finally, the impact estimated by the University of Toronto's Institute for Policy Analysis is more severe than that of either the Department of Finance or the Bank of Canada. According to its model, a 1 per cent appreciation in the Canadian dollar that is sustained over a four-year period reduces GDP growth by 0.27 percentage points in each of the first two years, and 0.08 percentage points in the third, before adding to growth in the fourth year. The implication is that the near-20 per cent appreciation of the currency would cut real GDP growth by 5 percentage points in each of the first two years, and 1.6 percentage points in the third. Granted, the Institute for Policy Analysis does consider these estimates to be on the high side. However, they do show how much of a hit standard economic models would predict from a currency that has risen this far,

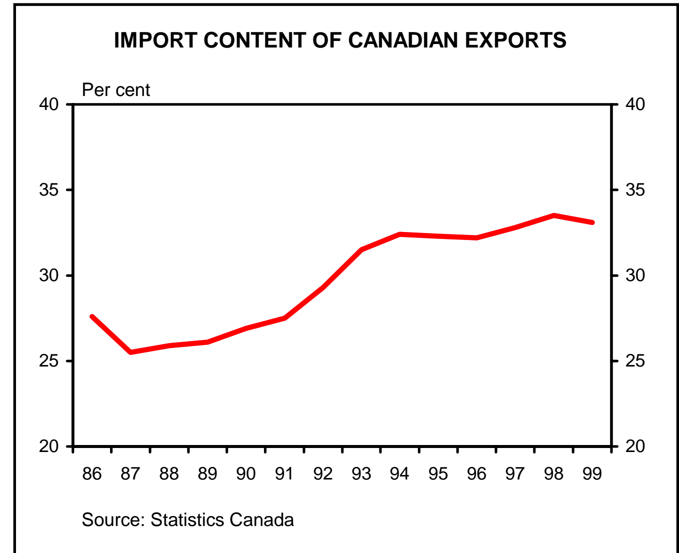
but more importantly, this fast.

It is important to note, however, that forecasters have generally not been taking their raw model output at face value. That is fairly evident with the Bank of Canada, which has been openly downplaying its traditional model estimates. However, most other forecasters have also been trimming back the estimated impact of the stronger dollar that their models have been suggesting. One obvious reason is that the economy is not doing nearly as badly as the models would predict – as they say, the proof is in the pudding. However, there are other good reasons to pare back the output generated by standard models.

Perhaps the most important is that the pattern of Canadian trade has changed noticeably over the past few years, and therefore, the economy's export exposure is not as heavy as gross export data would suggest. While the stronger Canadian dollar hurts exporters, it also lowers the prices of imported goods. And, increasingly, there is a large amount of import content in Canadian exports – in other words, exporters import a significant share of the goods that are used as inputs in the production process. When the Canadian dollar appreciates, the price of the imported inputs declines, putting downward pressure on production costs – and that positive impact will offset part of the negative hit from the stronger loonie (although lower import prices will also reduce the value of goods already in inventory, causing importers to suffer an inventory valuation loss). It is not the gross export exposure that matters, but the net export exposure, once the positive spillover on the import side of the ledger is subtracted from the gross export content.

A recent article by Statistics Canada did precisely that calculation, and showed that the import content of Canadian exports has risen dramatically since the late 1980s. In 1988, the import share of exports was just under 26 per cent. In 1999, this had risen to more than 33 per cent. As a result, while the share of exports in GDP was 43 per cent in 1999, the net (or value-added) export share – that is when the import content of exports is accounted for – is a much less daunting 28.8 per cent. While that is still enough for the appreciating loonie to weigh heavily on economic growth, it also suggests that the net impact of the loonie's gains may be less severe than one would initially think.

And, there are factors specific to the current macroeconomic environment that may also temper the fallout from



a stronger currency. For example, the corporate sector is on a very solid footing, in sharp contrast to the strong dollar episode of the early 1990s. Notably, corporate profits are running at close to an all-time peak as a percent of GDP, and corporate balance sheets are in very good shape – in fact, they were barely dented when the U.S. economy went into recession in 2001. That provides Canadian companies with more of a buffer to absorb the transitional impact of the stronger loonie than would otherwise have been the case – and certainly more than in the early 1990s.

Finally, based on anecdotal reports, many companies were already positioned for a stronger Canadian dollar – perhaps not a 79 cent loonie, but still, they were not expecting the dollar to remain at 62 U.S. cents. Many were betting on a loonie in the 67-68 cent range. Therefore, the true shock faced by those firms was the move from a 67-68 cent loonie, not 62 cents. In addition, many corporations had been actively hedging their foreign exchange exposure, aware of the odds that the loonie would eventually turn the corner. While that does not eliminate the need to eventually face up to the reality of reduced export competitiveness, it does buy them some time to start to make the required adjustments. This will be discussed at greater length in section IV.

All in all, taking the results of the traditional models, a reasonable ballpark figure is that the stronger loonie will probably shave something close to 2 percentage points off real GDP growth in 2004. Had it not been for the loonie's flight, the combination of super-strong U.S. growth, mega-low interest rates, and rising commodity prices would have propelled Canadian economic growth to close to 5 per cent.

Instead, average growth this year is likely to come in at slightly less than a 3 per cent clip – not a disaster, but well below what would have been achieved, all other things being equal.

The inflation channel

Another area where the appreciating currency can have a direct impact on the economy is through its effect on inflation. Not only should the rising loonie keep a lid on inflation by dragging down growth and, therefore, increasing the slack in the Canadian economy, but there is a more direct impact as well – namely, the extent of the direct pass-through from the exchange rate to lower import prices, and eventually to retail prices as a whole. This occurs through two channels. The first is virtually immediate – the stronger currency pushes down import prices, and since the Consumer Price Index (CPI) does include some imported goods, it directly lowers the CPI as well. However, evaluating its magnitude is not a simple exercise, since companies often mark-to-market prices based on a variety of considerations, rather than mechanically translating foreign-currency prices into their Canadian dollar equivalents. The second channel is more indirect, as lower-priced imports create price competition for similar domestically-produced goods, and consequently, also puts downward pressure on their prices.

How big is the likely impact of the loonie's gains on consumer prices?

Unfortunately, it is not evident exactly how much inflation will be lowered by the stronger dollar. One rule of thumb that has often been used in the past is that the impact is roughly equal to the import content of the Consumer Price Index (CPI). Based on Statistics Canada's input-output tables and the weights in the Consumer Price Index, about 20 per cent of the CPI is made up of imported goods. That would imply that a one-percent appreciation in the value of the Canadian dollar reduces the CPI – all other things equal – by 0.2 per cent. Given the extent of the loonie's rise last year, that relationship would translate into an almost 4 per cent decline in consumer prices, which is absolutely huge – too huge to be believable.

The true pass-through effect is unlikely to be anywhere close to that. In just about every industrialized country, the pass-through from currency movements to consumer prices has been observed to be much lower than in the past. A case in point – during the whole period during the 1990s when the Canadian dollar was losing ground, it was very difficult to discern any upward pull at all on consumer prices, suggesting that the pass-through effect was virtually nil. One explanation for that unexpected turn of events is that competitive pressures are much stronger, and therefore, retailers have much more difficulty passing on price increases. The consensus now is that pass-through effects are much less pronounced than they once were, in either direction. Unfortunately, there is no longer any benchmark as to their magnitude. One possibility worth considering, however, is that if competitive pressures prevented pass-through from occurring when the currency was falling, the same competitive pressures may in fact allow price declines when the currency is rising.

Regardless, it is clear that in light of the extent of the appreciation in the dollar's value, even a small pass-through coefficient will generate a significant impact on consumer prices. For example, even at a 0.5 per cent pass-through, a 20 per cent appreciation would shave a full percentage point off the CPI – enough to push the rate of inflation well into the bottom half of the Bank of Canada's target range.

Moreover, the CPI is not the only price measure that would be affected. The impact on the GDP deflator is likely to be considerable, and goes well beyond the effect on consumer prices. Notably, lower export prices, import prices, and prices of machinery and equipment – of which the bulk is imported – could weigh significantly on the deflator. According to the University of Toronto's model, a 10 per cent appreciation in the value of the currency reduces the GDP deflator by 0.3 per cent in the first year, 1.0 per cent in the second, and as much as 2.3 per cent in the fourth, relative to the levels that would have been observed in the absence of the currency's gains.

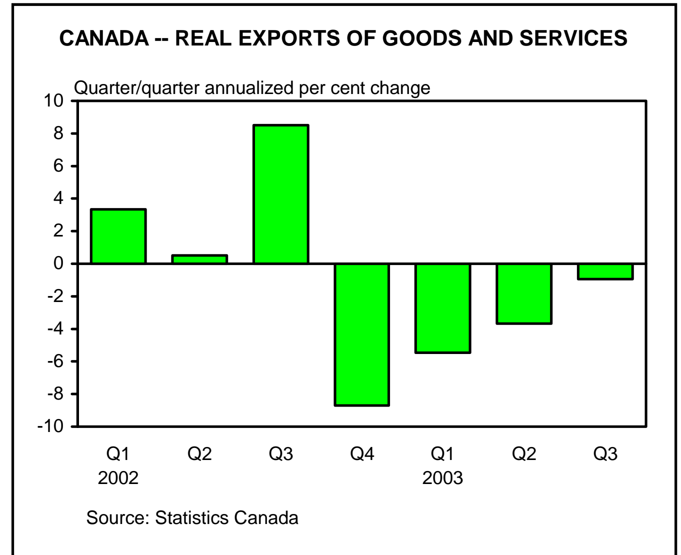
What is the evidence?

So, what is the data actually telling us? How has the currency's rise affected growth and inflation thus far? While it affects the economy with a lag, sufficient time has elapsed since the loonie took off for the evidence to have started to accumulate. Unfortunately, while the fallout cannot be measured with precision, it is obvious that the soaring loonie has already taken a substantial bite out of Canadian economic growth.

While the overall economy is still holding up well,

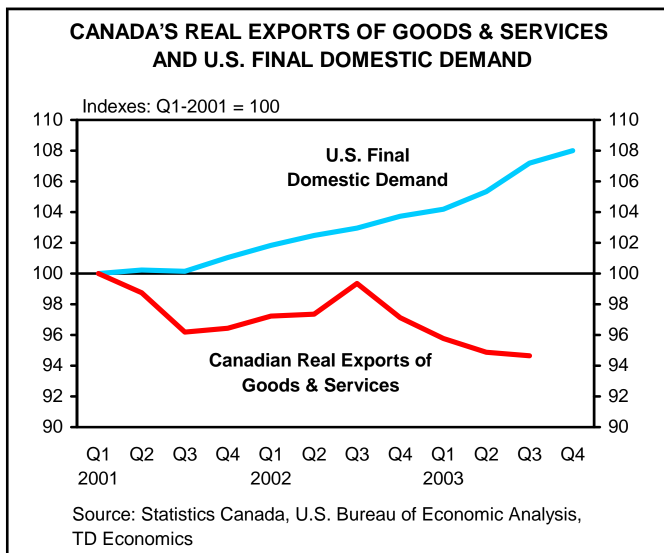
thanks to the resilience of domestic demand, the export sector has really taken it on the chin. Real export volumes declined for four straight quarters between the final quarter of 2002 and the third quarter of 2003 – which is quite simply unprecedented (at least since the beginning of the data series in 1961). Granted, this was not all loonie-related. The U.S. economy ended 2002 and started 2003 on a very weak note, thereby contributing to exporters' woes. Nonetheless, the fact that export volumes dropped by almost 5 per cent during that period, though by no means a disaster for Canadian exporters, does suggest that the dollar's appreciation is digging into Canada's trade performance. Import growth has also been quite strong as of late, suggesting the stronger dollar may be stimulating some import competition for Canadian industries as well. In fact, during the year to the third quarter of 2003, net trade took 2.5 percentage points out of Canadian GDP growth – a significant drag considering that the economy expanded at a mere 1.0 per cent pace over that period.

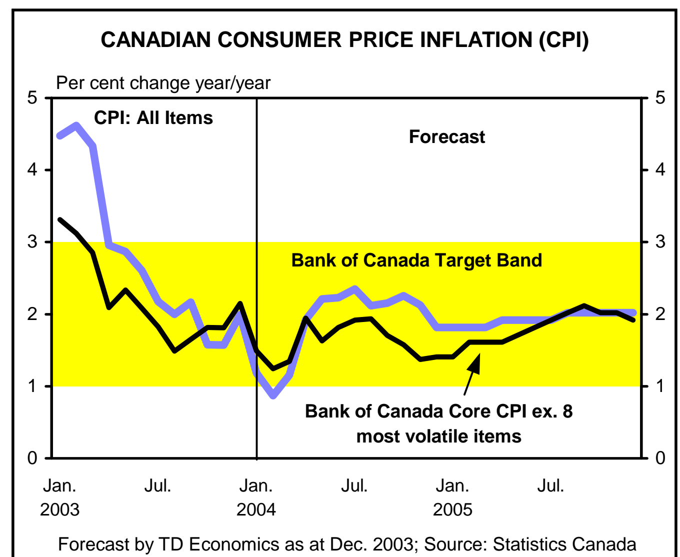
Another revealing indication of the impact of the stronger loonie is in the divergence between Canada's recent export performance and the growth in final domestic demand in the U.S. Not surprisingly, there is a strong correlation between U.S. domestic demand growth and Canada's exports. However, that relationship has broken down as of late – obviously reflecting the currency's drag on shipments abroad. In fact, given the growth spurt in the U.S. economy in the second half of 2003, exports should be powering ahead at close to a double-digit pace, not languishing as they are.



The impact of the loonie's flight is also visible in the composition of growth by industry sector. Notably, in the first ten months of 2003, the manufacturing sector – which is heavily export-oriented – contracted by more than 1.0 per cent, while the service-sector industries, which tend to be more domestically-focussed, expanded by 1.6 per cent. The same is true of the employment picture. Although the Canadian economy as a whole created a net 271,000 jobs in 2003, the manufacturing sector lost 57,000 positions, or 2.4 per cent of its workforce, which amounts to a rather substantial decline.

What about the impact on inflation? Here too there is compelling evidence of some spillover from the loonie's flight. In early 2003, the Bank of Canada's measure of



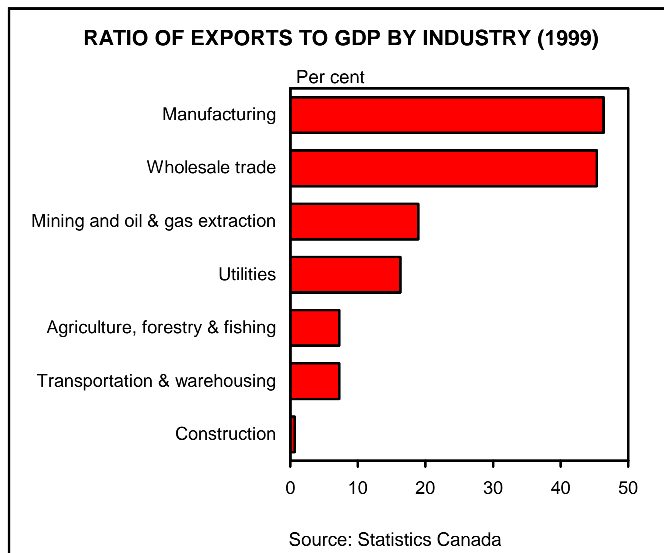


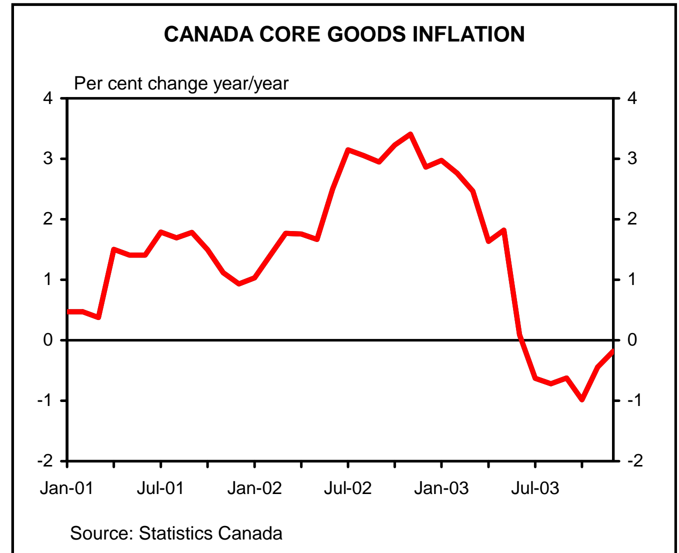
core inflation was running at 3.3 per cent – above the top end of its 1-3 per cent target range. By August, it had slid below the mid-point of the range to a mere 1.5 per cent, before recovering some lost ground in the final months of the year. More notably, during the period between February and August – which roughly coincides with the period during which the bulk of the currency's appreciation was occurring, the core CPI was essentially flat. Moreover, core goods prices – that is, goods excluding the food and energy components – were falling outright during that whole period, and as a result, the year-over-year rate of core goods inflation is now in negative territory. And, that is exactly where one would expect the appreciation of the Canadian dollar to hit the hardest, since there is a much higher proportion of goods that are tradable than services. There may have been other things going on, but it is fairly obvious that the loonie's gains are a big part of the equation.

The sectoral impact

The macroeconomic impact is not the only facet to be considered. Export-dependence varies greatly across Canadian industries, and therefore, some sectors will be more adversely affected than others. It is simply not enough to say that all exporters are on the losing end of the Canadian dollar's surge.

Clearly, in terms of raw export exposure, manufacturing is at the top of the rankings, followed by wholesale trade. In both cases, exports account for just less than 50 per cent of total output. And, in the case of manufacturing, five industries rely on exports for at least half of their production – and these industries account for nearly 65





per cent of all manufacturing production. Transportation equipment – i.e. autos – tops the chart, with an export exposure at an eye-popping 73 per cent. Forest-products and electronics are also very heavily export-oriented.

However, there is more to the story than the raw export exposure of various industries. As already mentioned, many of those Canadian exporters are also importers of production inputs, and as the currency appreciates, the cost of those inputs falls. As a result, the more import-intensive an exporting industry is, the less its true exposure to the appreciating Canadian dollar. Hence, any evaluation of the true export exposure of an industry must – at the very least – net out the import content of those exports.

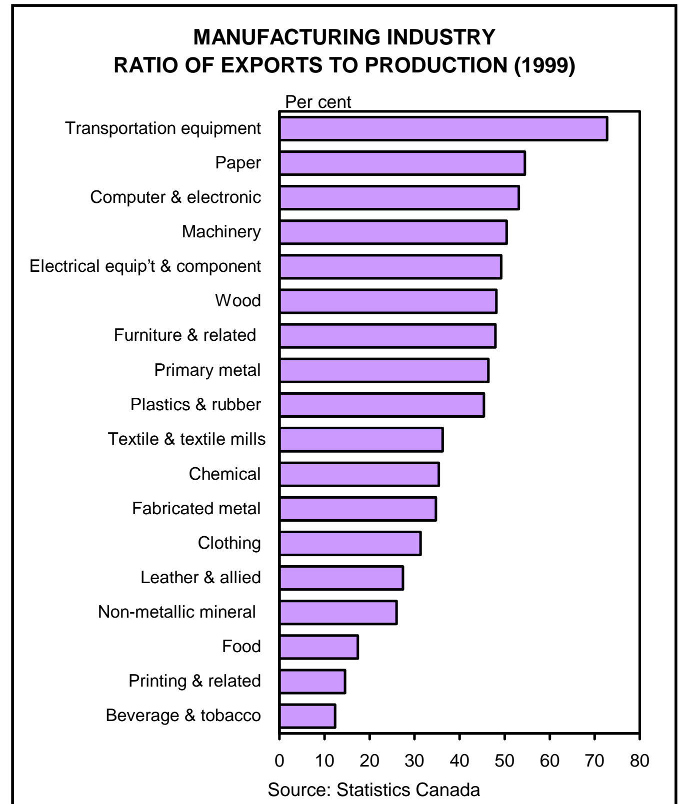
Once we take into account imported inputs, the picture changes, and significantly so. Notably, the transportation sector is not nearly as heavily exposed to the appreciating currency as it appears at first glance – hardly a surprise given the huge amount of two-way trade within the auto sector. In fact, of all Canada's manufacturing industries, transportation also has the largest ratio of imported inputs to gross production. Consequently, when this is taken into account, its net export reliance falls to 30 per cent – still among the leaders, but nowhere near the level suggested by its gross export exposure. Similarly, the electronics industry is noticeably less heavily exposed that it initially appears.

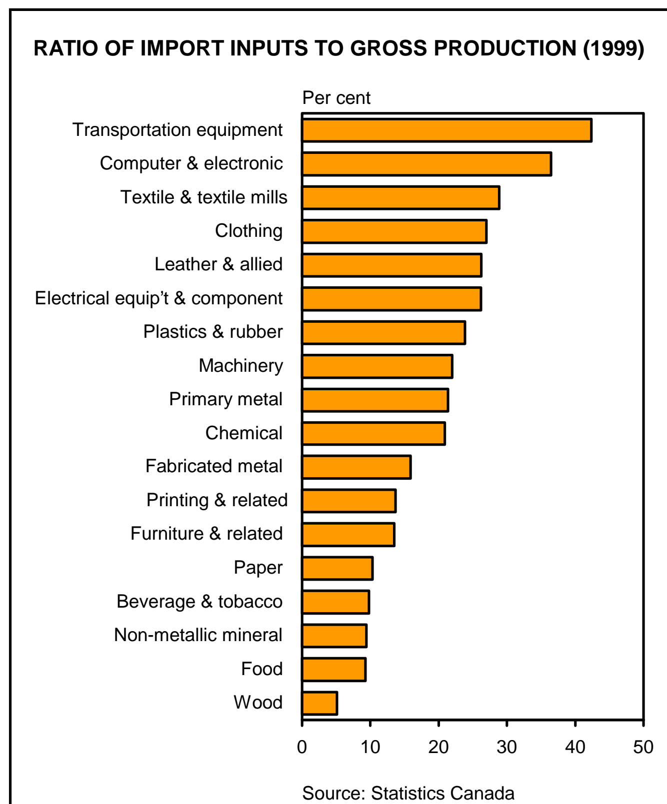
In contrast, given its low import content, the paper and forest products industry is the most vulnerable among Canada's manufacturing industries, on a net basis. Furniture, transportation equipment, machinery, electrical prod-

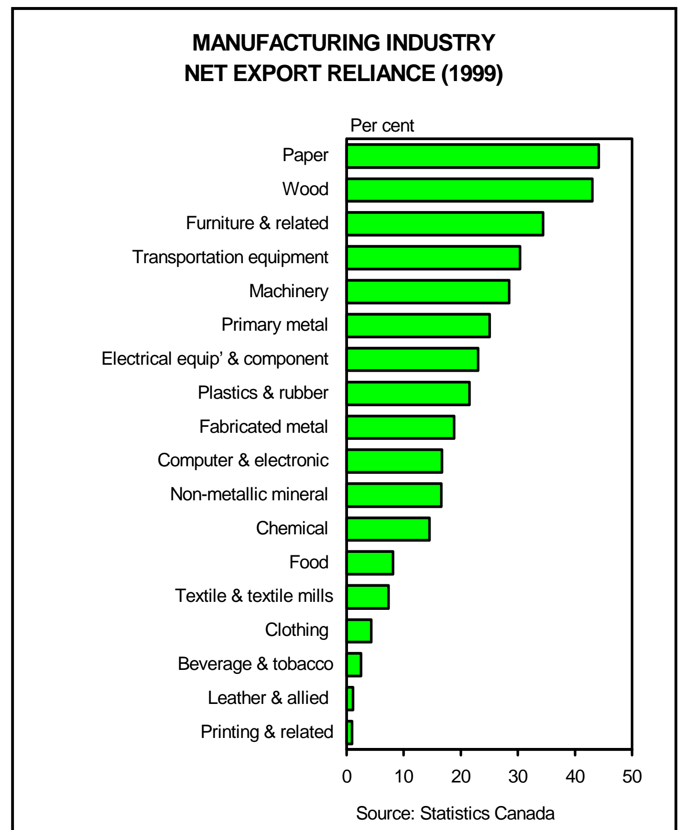
ucts and primary metals also have relatively high exposure levels.

A study by Richard Dion of the Bank of Canada comes to similar conclusions[3]. However, there is an additional twist to his methodology. In addition to net export exposure, Dion also considers the impact of import competition on Canadian industries – the idea being that an appreciation in the currency lowers not only the price of imported inputs, but also of imported goods that compete directly with domestically-produced products. As a result, his measure of trade exposure adds to net export exposure the value of imports of the core products of a given industry as a share of total domestic consumption of that product. The study finds that total trade exposure is high in primary sectors such as forest products, mining, and crude oil and natural gas. It is also high in machinery and electrical and electronic products. Interestingly, it is slightly negative in construction – which means that the industry benefits on a net basis from the appreciating loonie. While the construction industry does import some of its inputs, it is not exposed on the export side at all.

Moreover, goods are not the only part of the story. While services as a whole are more domestically-oriented, and therefore less vulnerable than industries that produce







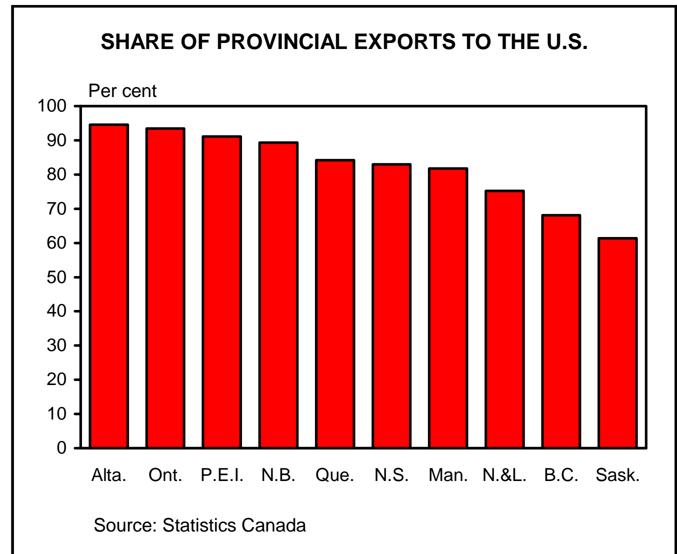
tradable goods, some service sector industries will feel a bit of a pinch. Tourism-related sectors such as accommodation and food services, and airline travel, for example, will feel the squeeze from lower tourism revenues. Overall, however, service-sector industries will still be much less affected than their counterparts on the goods side.

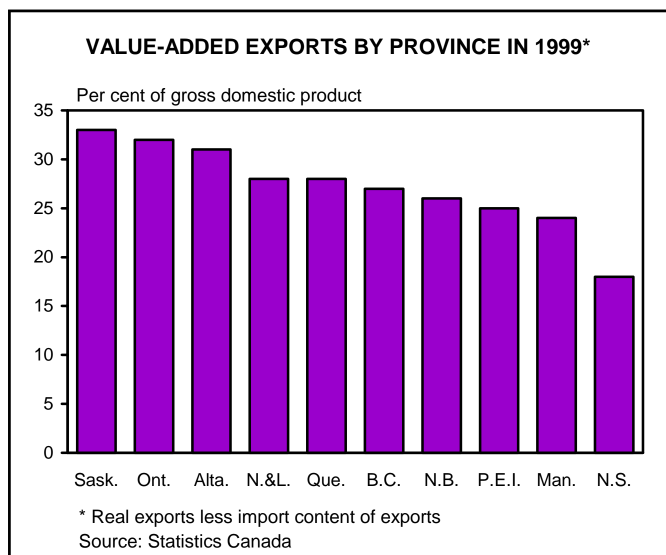
The regional impact

Finally, the impact of the currency's ascent will also differ across regions. Given that the regional economies vary widely in terms of industrial makeup, it is clear that not all provinces will feel the same pinch from the Canadian dollar's revival.

The first question is the extent to which raw export exposure varies across regions, taking into account both exports of goods and services. And, clearly, Ontario stands out as the most export-dependent regional market, with exports of goods and services comprising a hefty 50 per cent of GDP. At 40 per cent of GDP, New Brunswick and Saskatchewan follow next on the list. PEI, Nova Scotia, British Columbia, and Manitoba are all clustered at the other end of the spectrum, with smaller – albeit still important – ratios of 29-30 per cent.

However, those shares include exports to *all* countries. More important is how the provinces stack up in terms of their export reliance on the United States. Since the Provincial Economic Accounts do not break down exports of goods and services into country of destination, we turned to statistics from Canadian customs offices on trade in goods to answer the question. Interestingly, with 95 per cent of their total exports destined for the U.S. market, Alberta surpassed Ontario as the most reliant on the United States last year – albeit by only 1 percentage point. In contrast, Saskatchewan (61 per cent) and British Columbia (67 per cent) recorded the lowest shares, while most other provinces were between 80-90 per cent (see chart). The 87-per-cent tally for Canada as a whole in 2002 was the highest level on record, as most provinces continued to see their ratios climb.





Combining these U.S.-export shares with the GDP shares of total all-country exports of goods and services provides a better glimpse of how vulnerable provincial economic performances are to U.S. export demand. As the accompanying chart shows, Ontario and New Brunswick still top the list, but Alberta vaults into third place, while neighboring Saskatchewan slips from third position to eighth.

But net trade reliance is what matters

So far, Ontario and New Brunswick appear to stand out as the most exposed to the strengthening of the Canadian dollar against the U.S. dollar. But, this ignores the import side of the ledger – an important consideration because, as we pointed out in the earlier section on the sectoral impact, there is significant import content in Canada's exports. And, prices of U.S. imports decline as the Canadian dollar rallies.

Unfortunately, the export analysis above cannot be replicated on the import side, since customs figures on provincial imports from the U.S. alone are rife with measure-

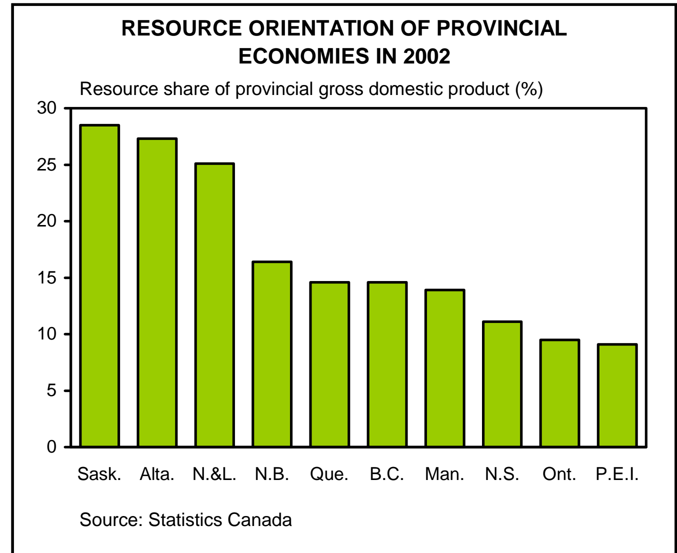
ment problems. Still, using the all-country trade figures, and deducting imports from exports, can provide a good gauge of *net trade reliance* on the U.S. by province. As the chart shows, Saskatchewan jumps ahead of Ontario into first place in term of net trade reliance, largely given the low import content of its resource-based agricultural, potash and crude oil exports. On the flip side, Ontario has the highest import content of exports partly as a result of significant two-way trade in its automotive sector. Alberta and Quebec fall next on the list, while the Atlantic provinces, which are less dependent on trade in general, occupy the low end of the spectrum.

But, there is another saving grace as well for some other provinces. Although Saskatchewan, Alberta and Newfoundland rank in the top five in terms of net trade reliance, and hence among the most exposed to the currency's jump, they are highly reliant on resources. And, world commodity prices have moved in lockstep with the Canadian dollar over the past 12 months, which offsets part of the impact. Alberta, Saskatchewan, and Newfoundland & Labrador are home to the most commodity-reliant economies among the provinces – about one-quarter of real GDP is attributable to direct and indirect resource activities – with much of that total production attributable to oil and gas. Moreover, New Brunswick, Quebec and British Columbia have notable resource shares, especially in forestry and mining.

Admittedly, this matters very little over the long haul – ultimately, it is the total export exposure that really counts. Commodity prices will not continue to rally forever. While one must recognize that a near-term offset does exist, resource producers will also have to face the music down the road.

Finally, provincial economies across the country will also feel the impact of increased competition from foreign imports. This is particularly the case in Ontario and Quebec, where the bulk of activity in the largest import competing sectors of machinery and equipment, electrical and electronic products, and primary metals takes place. Already, these sectors are showing visible pain from U.S. competitors, who are allowing prices to drop in Canadian-dollar terms in order to gain market share, rather than leaving prices intact and enjoying a profit windfall.

Put it all together, and the provinces that are likely to face the greatest challenge from the Canadian dollar's



strength are Ontario and Quebec. In contrast, the resource-based provinces of the west and Atlantic will be partially shielded by either offsetting increases in world commodity prices in the near term, or their lower overall net reliance on trade to the U.S. – such as B.C. and Saskatchewan — over the longer haul.

What about the long run?

Finally, there is more than the short-term transitional impact of the currency's gains that comes into play – there are longer-term considerations as well. There was much concern when the loonie was falling to all-time depths that the weak dollar was hampering Canada's productivity performance. The main rationale for that complaint was that Canadian manufacturers, blessed with ultra-competitive exports, would presumably sit on their laurels instead of investing to increase productivity.

There was precious little evidence at the time to support that assertion, to say nothing of its weak foundations in theory (for a more complete discussion, see *The Penny Drops,* TD Economics, April 24, 2001). In addition, in spite of the weak Canadian dollar, business investment did pick up in the second half of the 1990s. Unfortunately, the productivity boom that the U.S. was experiencing did not spill over to this side of the border – but then, no other major industrialized country followed the U.S. down that path either.

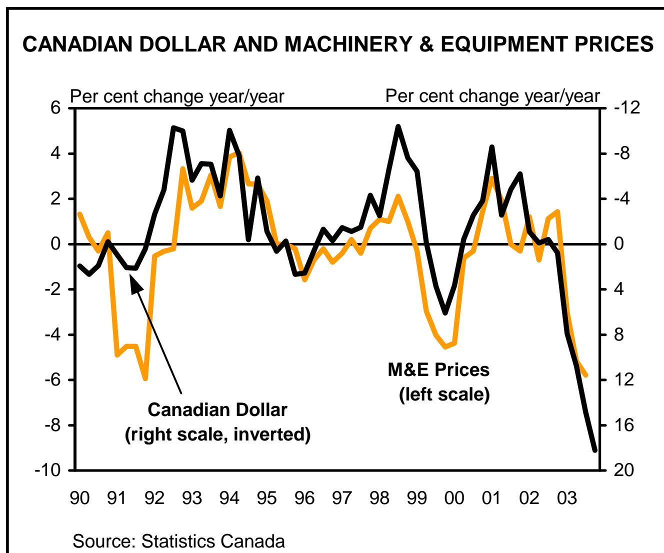
Nonetheless, there is good reason to expect the Canadian dollar's appreciation to provide a fair degree of support to business investment. According to Statistics Cana-

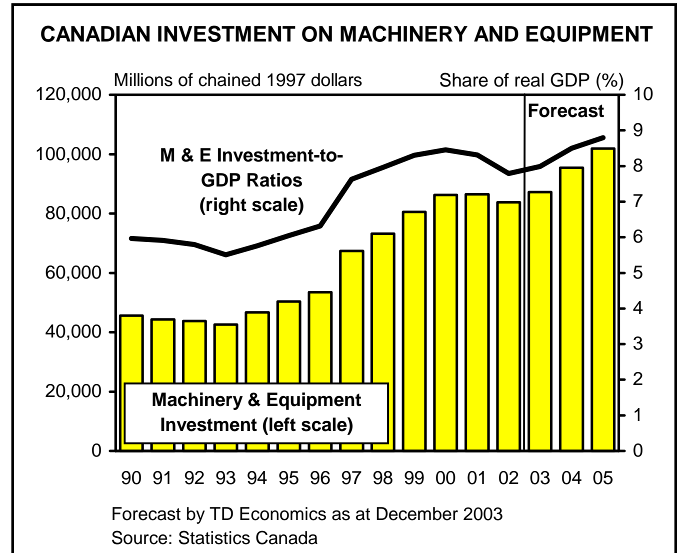
da's import coefficients, as much as 86 per cent of Canada's machinery and equipment is imported. As a result, there is a tight correlation between prices of machinery and equipment and the exchange rate. One of the key drivers of business investment is the price of capital goods relative to wages. If the cost of capital – which involves both the price of capital goods and interest rates – declines relative to wage rates, companies will substitue capital for labour. And, insofar as a higher ratio of capital to labour is one of the key drivers of productivity growth, stronger productivity gains should result over the longer haul. And, that can only be good for the Canadian economy down the road.

The bottom line is that the short-term negative effects may be the most visible aspect of the Canadian dollar's impact on the economy for now. But ultimately, the loonie's rise will procure some longer-term benefits.

IV. Corporate responses to the stronger Canadian dollar

In the prior section, several references were made to corporate actions that will affect the fallout from a stronger Canadian on businesses that are adversely affected by a higher exchange rate. For example, some firms will have made allowances for the possibility of a modest appreciation in the Canadian dollar in their business plans. As a result, it will be the extent to which the loonie has strengthened beyond the level expected in their plans that will have the greatest impact on their financial performance. Moreover, many companies that have significant U.S. dollar revenues will have entered into financial contracts, a practice





known as hedging, that at least partially protect their cash flows from a strengthening in the Canadian dollar. Some businesses also have natural offsets, such as U.S. dollar denominated expenses, that will limit the negative consequences from the surge in the Canadian dollar. The immediate impact on production may also be delayed if firms opt to compress their profit margins. And, the negative impact on competitiveness could be limited if firms have U.S.-based operations and are plugged into the U.S. supply chain. Although these corporate responses will not solve the underlying challenge from a stronger Canadian dollar, they are terribly important because in many cases they will help to facilitate the adjustment process to a higher exchange rate.

Many businesses anticipated a modestly stronger dollar

Although the Canadian dollar trended significantly lower over the last decade, many businesses correctly viewed the decline to below 63 U.S. cents as being unsustainable. Based on anecdotal evidence, it appears that numerous firms assumed in their corporate plans that the currency would bounce back to around the 67 U.S. cent mark in 2003. This is somewhat surprising, as our forecasts in early 2002 for an appreciation in the currency to around 67-68 U.S. cents often sparked laughter. Nevertheless, it seems that while businesses were skeptical about the ability of the currency to strengthen, they were still willing to be conservative in their financial planning. Accordingly, this higher exchange rate was used in inter-

nal forecasts of revenues and costs and factored into decisions related to pricing, investment and wages. For these firms, it is the speed of the move from 67 U.S. cents that represents the real shock to the performance of the company and that will require a response in corporate plans for the coming year.

Hedging will limit the immediate fallout

In addition to conservative corporate planning, many firms have been active in managing their foreign exchange risk. By entering into foreign exchange hedging strategies (such as forwards, options and swaps), many companies with significant U.S. dollar revenues have reduced at least some of the immediate impact from the stronger Canadian dollar. An illustration might be useful at this point.

Example: Firm A is expected to have U.S. dollar sales amounting to US$5 million in the coming year. The company is worried about the possibility that the Canadian dollar might appreciate by 10 per cent over the next twelve months, reducing the value of its foreign currency denominated revenues by a similar amount. The firm buys a forward contract agreeing to sell US$2.5 million in 12-months time at the exchange rate prevailing at the time of booking the contract. By doing so, the company effectively eliminates the foreign exchange risk on half of its expected foreign currency revenues, but also gives up half of the gains that would be made if the Canadian dollar depreciates in the coming year.

It is difficult to assess the extent to which companies have been hedging. There are no comprehensive surveys done on hedging practices, and as a result, most of the information currently available is anecdotal. For example, we believe that about two-thirds of Canadian companies with more than 20 per cent of their revenues in U.S. dollars engaged in hedging to some extent. But, it is not clear what percentage of revenues is protected. And, at the aggregate national level, it is not known what represents the average exchange rate used in past hedging contracts, thereby limiting the ability of economists to assess how the contracts will delay the economic consequences of the rally in the Canadian dollar.

Complicating matters, there is considerable diversity across and within industries with respect to hedging strategies. Indeed, the decision of whether, or how much, to hedge appears to be heavily influenced by the opinions of a firm's board of directors, CEO or CFO towards the practice of hedging. Although the intention of hedging is clearly to manage foreign exchange risk, some still mistakenly view hedging to be a form of financial speculation.

The implication is that it is impossible to reach an assessment of the degree to which hedging will limit the economic fallout at the national level from the stronger Canadian dollar. Having said that, there are a few general observations that are worth making.

First, to the extent that hedging tactics have been used, it will moderate the impact from the stronger Canadian dollar, but if the Canadian dollar retains its recent gains, businesses will have to cope with the higher exchange rate once the hedging contracts expire. The point is that hedging does not alter the fundamental truth that a company that hedges must still be profitable at the higher value of the Canadian dollar – hedging just helps to provide time to adjust to the new reality. However, this increased flexibility can be terribly important, particularly during periods of extreme foreign exchange movements.

Second, many firms implement a tiered or layering approach to their hedging strategies. In other words, rather than having a single contract, there are many contracts, which expire at different times. The implication is that over the course of a year, businesses will be forced to replace hedging contracts that have concluded. This tiered approach can be thought of as almost a version of dollar cost averaging, but for foreign exchange risk.

Third, although the size of a firm should not have an impact on hedging behaviour, small and medium size businesses (SMEs) appear to have been less likely to hedge. This may reflect limited in-house treasury expertise and the complex nature of some hedging strategies. It may also reflect less exposure to U.S. dollar revenues, as larger firms are often more export oriented. Nevertheless, the recent dramatic rise in the Canadian dollar may have increased the awareness of the need to engage in some hedging strategies. And, the limited familiarity with options, forwards and swaps need not be an obstacle, as firms can leverage off the expertise of the major Canadian financial institutions. Accordingly, there is no reason for SMEs to expose themselves needlessly to more foreign exchange risk than their larger counterparts.

Fourth, the impact of hedging in reducing the overall economic fallout may prove limited if firms did not ad-

equately protect their revenues. Indeed, with the Canadian dollar having been on a declining trend over much of the last decade, exporters may have been under-hedged when the currency rebounded. And, as the currency soared, there was likely a natural inclination to wait for a pullback in the exchange rate before putting in place hedging contracts, but the dip never happened. As a result, businesses may not have been appropriately protected from an upward move in the currency. Indeed, the recent experience of the Canadian dollar is a case study in why firms should hedge against foreign exchange volatility – but for many firms the lesson will have been learned too late.

Fifth, there is a counterparty to all hedging contracts. So if a firm has entered a forward contract to sell U.S. dollars in 12 months' time at the current exchange rate, there must be a counterparty that has agreed to buy the U.S. dollars. Although a company will deal through a financial services firm, the latter will likely either be acting as an intermediary or will ensure that it enters into an offsetting position with another firm to eliminate its exposure to the contract. Nevertheless, for every contract there is a counter position. If the ultimate counterparty is a Canadian company, then the net national economic impact from the hedging contract will be zero. But, if the counterparty is a foreign firm, then the hedging will reduce the domestic economic fallout from the rise in the Canadian dollar. Regrettably, there are no available data to assess to what extent foreign companies are taking the offsetting positions.

The bottom line is that it is difficult to predict how much of an effect the hedging contracts will have on tempering the impact of the rally in the Canadian dollar on the overall economy. Businesses that were well hedged may not feel the brunt of the stronger dollar for some time. Meanwhile, others that were under-hedged or unhedged will have to adjust to the reality of the higher exchange rate immediately. Regardless, we do know that the hedging contracts will gradually expire, implying that any shielding effect is only temporary. Nevertheless, companies that were well hedged will have a greater opportunity to adjust to the new reality of a strong currency.

Natural hedges also important

Some companies also have natural offsets to an appreciation in the Canadian dollar. For example, selected businesses have made an effort to match the currency of their revenues to the currency of some of their costs. This can be illustrated by the issuance of debt denominated in U.S. dollars by many Canadian companies. Indeed, over the past ten years, non-residents have been net purchasers of $132 billion of debt denominated in U.S. dollars by Canadian governments and corporations. However, it is impossible to assess how much of this debt was issued by exporters. For example, since Canada does not have a low credit grade bond market, many domestic firms with modest credit ratings borrow in the United States. Moreover, the limited size of the Canadian bond market also encourages some companies to choose to issue debt in the United States. Indeed, for some firms it is cheaper to sell debt in the States and then use financial contracts, such as swaps, to offset the resulting foreign exchange risk. Regardless, to the extent that exporters are issuing U.S. debt, the advantage is that when the Canadian dollar rises, revenue earned in U.S. dollars will decline, but so too will the interest paid on U.S. dollar debt.

Furthermore, firms that export heavily to the United States may purchase their inputs from south of the border, which again matches the currency of their revenues to costs. And, the inputs can be either materials or capital goods, with the latter including machinery and equipment.

However, similar to hedging, the impact of natural offsets is hard to quantify. And, in at least one major respect, costs are not being lined up with revenues. A survey by the Bank of Canada found that out of 293 firms investigated none quoted its salaries and wages in U.S. dollars alone and only one quoted them in both Canadian and U.S. dollars. So, it is evident that labour costs, which are often the single biggest business expense, are being paid in Canadian dollars, regardless of the foreign exchange exposure of a company's revenues.

Firms may choose to compress profit margins

The pricing behaviour of firms may also limit the impact of the stronger Canadian dollar on economic growth. Consider the following example. When the Canadian dollar appreciates, an exporter can choose to cut the prices for its goods and services to prevent becoming less competitive in foreign markets. By doing so, the company may be able to preserve market share, implying that it will continue to produce value-added output at the same pace as with a weaker currency. However, the firm will have compressed its profit margins. Hence, the volume of out-

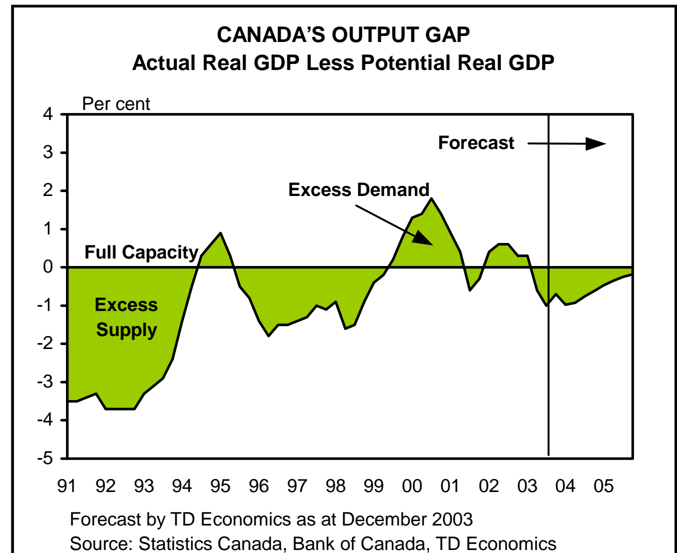
put is not affected, but corporate profits are reduced. In order to restore profit margins, the firm will have to cut costs, including labour. Unless there is an increase in productivity, the reduction in employment will eventually lead to lower real GDP growth. And, there are limits to how far profit margins can be cut before the firm is posting losses that are unsustainable. The fact that firms now live and die by quarterly results may also limit the application of this strategy. Nevertheless, it is another way that firms may respond to the stronger Canadian dollar, which may explain why there is less of an impact on real GDP than predicted by some models.

U.S. based operations will not be made less competitive

Finally, if firms have U.S. based operations and/or subsidiaries, their operations abroad will not be made less competitive by the stronger Canadian dollar. Profits will be reduced if they are booked in Canadian dollars, but sales and production should not be affected. There is clear evidence that Canadian firms have become more integrated along north-south lines and have increasingly established a presence in the United States. This is evident from Canadian net direct investment to the United States, which has increased four fold since 1987. However, there are limits to the extent to which Canadian businesses will be able to rely on their U.S. operations. And, if companies find that their domestic operations cannot cope with the stronger Canadian dollar, the shift in the exchange rate could make moving the entire operation Stateside more appealing. As a result, the implication is that businesses with U.S. divisions or subsidiaries may have more flexibility in terms of adjusting their production and costs to reflect the appreciation in the Canadian dollar, but the reprieve will be only limited.

V. Implications for monetary policy

Obviously, by dampening the growth and inflation picture, the loonie's flight has noticeably altered the backdrop for monetary policy. Rewind to the first few months of 2003, and the Bank of Canada was actually in tightening mode, faced with an economy that was operating close to full capacity – or so it seemed – and inflation that was uncomfortably high. Notably, headline inflation was running above 4 per cent, while the Bank of Canada's core measure was above 3 per cent – outside its 1-3 per cent target band. While some one-off factors were clearly at



Forecast by TD Economics as at December 2003
Source: Statistics Canada, Bank of Canada, TD Economics

play (rising auto insurance premiums and electricity prices, for example) the underlying inflation landscape was still too hot for the Bank's comfort. Consequently, it increased its policy interest rate on two occasions, for a total of 50 basis points. And the Bank could not have been any clearer as to its intentions. In the press release following its decision to raise rates in March 2003, the Bank stated that "further reductions in monetary stimulus will be required to return inflation to the target over the medium term". Coming from a central bank, it does not get much clearer than that.

However, much has changed since then. As discussed earlier, the appreciating currency has already taken a bite out of economic growth. A host of temporary shocks – including SARS, a ban on beef and live cattle exports, the power blackout in Ontario and the B.C. forest fires – were also at play. As a result, economic growth in the first three quarters of the year came in at a mere 0.8 per cent annualized rate, with the economy actually contracting in the second quarter. By the third quarter of 2003, the Canadian economy was operating with a fair amount of excess capacity, as measured by the Bank's estimate of the output gap – and in its book, that makes all the difference in the world. Add to that the downward pressure on inflation, and all the ingredients were there for the Bank to reverse course, which it did in July and September, when it took back the rate hikes put into place early in the year.

Still, the Bank of Canada was far from convinced that further easing beyond those two cuts was in order. By the time the October 15th fixed-announcement date rolled

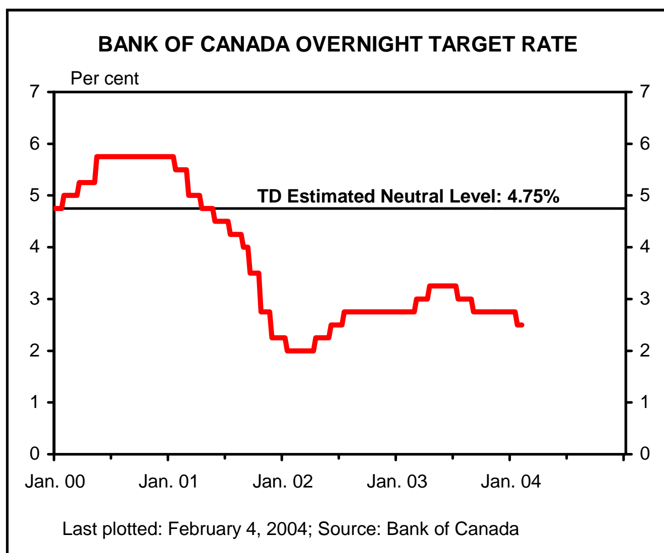
around, and the autumn installment of its semi-annual *Monetary Policy Report* was released, the Bank had come to the view that the negative impact of the currency's appreciation would be entirely offset by the positive effect of rising commodity prices and strong U.S. growth. That is why it held the line on interest rates both in October and December.

The Bank of Canada is now back in easing mode. It cut rates on January 20th, and another cut is in store for March 2nd. Recent economic data have been falling short of its expectations, and it has correspondingly lowered its forecast for 2004 economic growth, to the extent that it no longer expects the output gap to narrow in any meaningful manner in 2004. And, in what can only be described as an implicit admission that it is behind the curve, it only sees inflation moving back to its 2-per-cent target near the end of 2005 – almost 2 years from now.

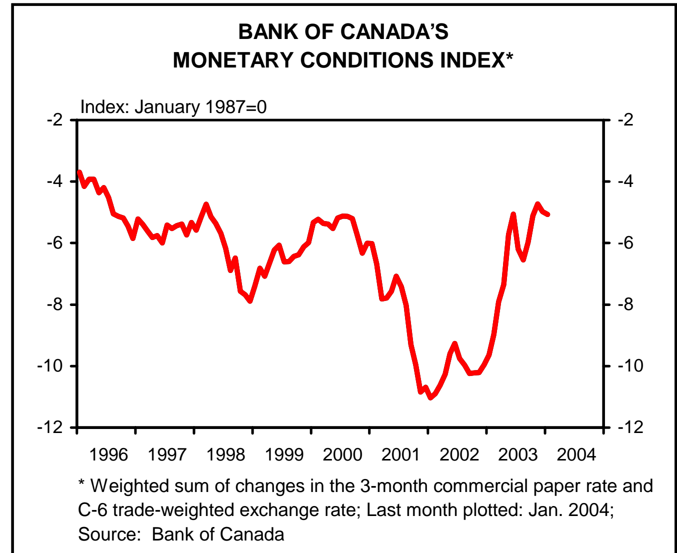
The book is not yet closed on the Bank of Canada. Depending on how the situation evolves, further rate cuts beyond March 2nd cannot be ruled out – although that is still not the most likely outcome. So, it may be useful to ponder the factors that will drive the Bank of Canada's policy choices in the months ahead.

Don't bother with the MCI

During the early months of the loonie's upward trek, much was made of the implicit tightening in overall "monetary conditions" that presumably resulted from the dollar's gains. At that time, many were referring to the Bank's ill-fated Monetary Conditions Index (MCI) as a gauge of



Last plotted: February 4, 2004; Source: Bank of Canada



* Weighted sum of changes in the 3-month commercial paper rate and C-6 trade-weighted exchange rate; Last month plotted: Jan. 2004; Source: Bank of Canada

its implied policy stance, and consequently, of the necessary interest-rate offset. Unfortunately that is not the right way to look at the impact of the loonie's flight on monetary conditions. If it were, there would have been ample justification for a massive round of rate cuts from the central bank. But it is not. While there may be good reasons for the Bank to cut rates, the MCI is not one of them.

Nonetheless, since the Canadian dollar may be on track to gain further ground in the months ahead, it is worth taking a look at why the central bank will not be examining the Canadian dollar's gains under the MCI looking glass.

The relationship implied by the MCI is simple – a three per cent appreciation in the trade-weighted value of the Canadian dollar (the bulk of which is the Canada-U.S. dollar exchange rate in any event) is the equivalent of a 100 basis-point increase in short-term interest rates, in terms of its ultimate impact on the economy. Evidently, fitting last year's exchange-rate increase into the MCI box produces rather alarming results, amounting to the equivalent of about 6 full percentage points of interest-rate hikes. If the relationship held, the currency appreciation would have had the same impact as if the Bank of Canada had raised its overnight rate from 2.75 per cent to 8.75 per cent in the first six months of the year, with the Canadian dollar still at about 63 U.S. cents. In other words, the Bank of Canada would need to reduce its overnight rate by 6 percentage points – which it obviously could not do – in order to fully offset the exchange-rate appreciation.

Unfortunately, the MCI is a very imperfect gauge of

the stance of monetary policy. For one, it does matter whether the move in the currency was generated by economic fundamentals that increase its "fair" or "equilibrium" value, or whether the gains were due to factors that have little to do with the economy's true underlying strength – short-term portfolio flows for example. Only in the latter case would the full appreciation of the currency be construed as being equivalent to a tightening of monetary policy. At the very least, a move from 63 to 72 or 73 U.S. cents could have been justified on the basis of Canada's stronger underlying fundamentals. In other words, the rise in the loonie was not entirely an exogenously-driven event, where all else remained equal.

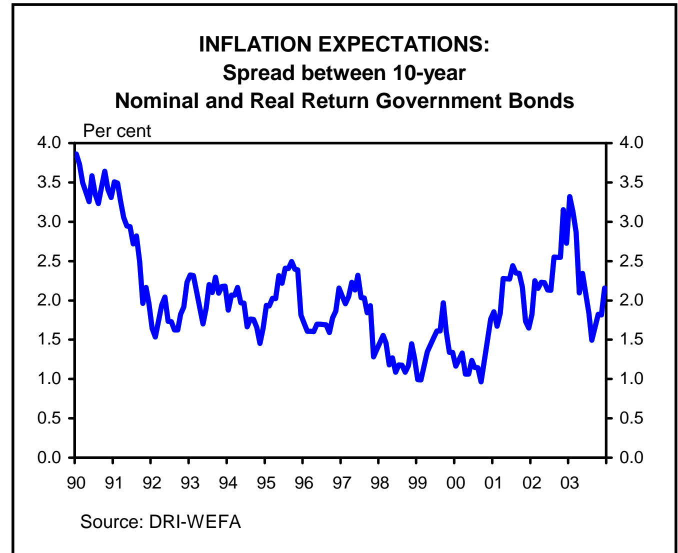
To take a simple example, the currency's gains in 2003 were accompanied – and certainly supported – by a substantial increase in non-energy commodity prices, which historically, have been one of the Canadian dollar's fundamental drivers. As a result, the impact of the Canadian dollar's gains on the resource-oriented sectors of the economy is nowhere near as severe as the full appreciation would suggest. That, alone, is reason enough to take the MCI relationship with a grain of salt – or at the very least, to subject it to a fair amount of scrutiny based on the prevailing circumstances.

And, finally – and this is perhaps the most convincing argument against the use of an MCI-type relationship in the current context – a 6 percentage-point increase in the Bank's overnight rate would have had a devastating impact on the Canadian economy by now.

The bottom line – while it is clear that overall monetary conditions have tightened as a result of the loonie's rise, the impact on the economy will likely be much less severe than would be implied by the MCI relationship. As a result, the Bank of Canada will not be putting much weight on the MCI as a driver of its policy decisions this time around. Nor should anyone else.

Look at the output gap and inflation

So, what will the Bank of Canada be looking at? Ultimately, everything boils down to its 2 per cent inflation target, and whether the loonie's appreciation affects its ability to meet that target. And, that depends on the size of the output gap and the Bank's growth outlook. In fact, it can be argued that the Bank, if anything, is now taking an overly mechanical approach to the use of projections of the output gap to meet its inflation target.



Source: DRI-WEFA

What should we keep our eyes on for clues as to the Bank's next moves? First, indicators of economic activity. At this stage, the Bank of Canada's forecast is very similar to ours – the impact of the currency's rise is significant, but it does not devastate the economy. However, there is still a lot of uncertainty as to how this will unfold over the next few quarters. If growth comes in below the Bank's expectations of about 3-per-cent (annualized) in the first half of 2004, the Canadian economy is likely to be operating below full capacity for a longer period of time. This will keep inflation below the Bank's target, and thereby, leave it with room to nudge interest rates even lower.

The second factor is inflation trends. The Bank is fully expecting core inflation to fall back well below its target as of January 2004, and to remain there for almost two years. Obviously, if inflation comes in higher than the Bank is expecting, it will have less wiggle room. However, if the Canadian dollar continues to rise as we expect it to, the more likely outcome is that lower import prices will continue to weigh on the CPI, as discussed in the previous section, leaving the Bank with even more breathing room. Moreover, even in the absence of additional gains in the currency, further pass-through from last year's currency gains to consumer prices cannot be ruled out.

Finally, it is important to realize that the Bank of Canada is not targeting any level for the Canadian dollar. While there has been talk of the Bank trying to push down the currency, it is doing nothing of the sort. By cutting interest rates, its only focus is to boost domestic demand in

order to send inflation back to its 2-per-cent target. Obviously, that may drive the currency lower as a side effect – or it may not – but the dollar's value is not what the Bank is targeting.

Put it all together, and the Canadian dollar's impact on monetary policy has been significant, and will most likely continue to be. Without the currency's gains, the Bank of Canada might well have taken a completely different path, which would have left it tightening monetary policy in early 2004, rather than cutting interest rates.

At this stage, it appears as if at least one more offsetting rate cut is in the bag. Whether the bank will continue further down the easing path will depend on the growth and inflation picture over the next few months.

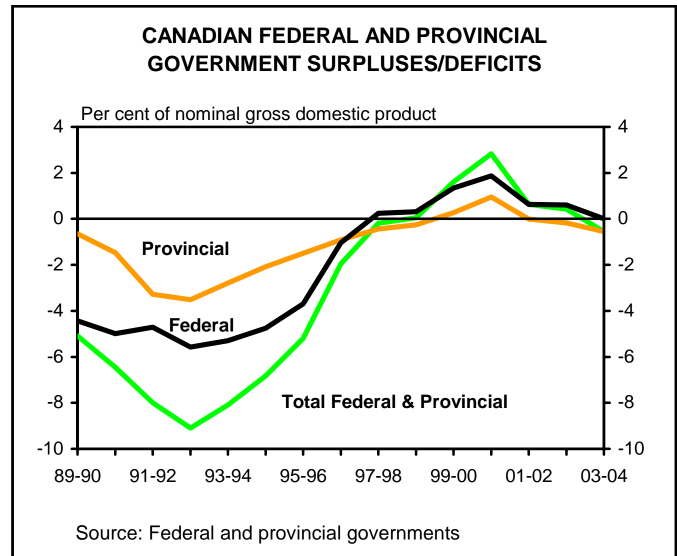
Whatever happened to dollarization?

Strangely enough, the key monetary policy debate that was running at full tilt when the currency was moving down, has been nowhere to be seen with the currency moving up – namely dollarization. This confirms what we were saying at that time. The debate was not so much about the inherent costs and benefits of adopting the U.S. dollar, but about the Canadian dollar's weakness. With the currency moving up, the debate has died. Interestingly, while the "volatility" in the dollar was used as an argument on the way down, the currency has been even more "volatile" on the way up. And, more importantly, it is inflicting near-term damage on the economy – visible damage. But about adopting the U.S. dollar – not a peep.

This remains a good time to reiterate that the dollarization debate should not be couched in frustrations about the currency's value, one way or another. There are arguments for and against flexible exchange rates, and they should be considered based on rational cost-benefit considerations, not emotional reactions to the weakness in the "national" currency. The rational arguments are the same as those that we expressed almost three years ago (see *The Penny Drops*). We continue to believe that in spite of the loonie's trials and tribulations, an inflation-targeting flexible exchange rate regime remains the best choice for Canada.

VI. Fiscal impacts from a stronger dollar

As the stronger Canadian dollar takes a big bite out of nominal economic growth – through lowering real output



and prices – it is dampening revenues of Canada's federal and provincial governments and contributing to a general fiscal squeeze. And, for these governments, the loonie's strength hardly comes at an opportune time, given the fact that all – that is, with the sole exception of Alberta – are either struggling to remain out of deficit or are already facing structural shortfalls.

As we pointed out in the section on regional impacts, the currency's rise is expected to exert the most notable drag on real economic growth and inflation in Ontario and Quebec over the next year. In contrast, the more resource-dependent economies of the east and west should be somewhat more insulated, given the accompanying increase in prices for their key commodity exports. At face value, this suggests that central Canada's economic heavyweights – and to a lesser extent, the federal government – will be faced with the largest negative net effects from the loonie's strengthening. However, there are other considerations:

- For equalization-receiving provinces, a weaker economic and fiscal performance by Ontario will result in lower equalization payments from the federal government. This is because Ontario has the largest weighting in the formula that determines respective funding levels. Further, the net gain from royalties due to strong commodity prices will be slight because of the "claw back" through equalization.
- On the plus side, with the weaker output performance likely to hold domestic interest rates at lower levels than would otherwise be the case, governments will enjoy savings on the debt-service side – and particu-

larly for those provinces that have hefty debt-loads such as Quebec and the Atlantic region.

- Furthermore, provinces that have a greater exposure to U.S.-dollar debt – that is, amounts unhedged or not matched by corresponding U.S.-dollar revenue sources will enjoy an added kick in terms of lower interest payments expressed in Canadian dollars. These provinces include Quebec, Nova Scotia, and Newfoundland & Labrador.

Measuring the effects

Measuring more precisely the impacts of the changes in the Canadian dollar on government fiscal positions is no easy task. Only two governments – Alberta and British Columbia – provide estimates of the fiscal effects of a change in the loonie (see table). For example, as the table shows, the 13-U.S.-cent jump in the Canadian dollar over the past year would deduct roughly $950 million from British Columbia's "status-quo" revenue forecast and $1.3 billion from that of Alberta. With the Canadian dollar expected to strengthen slightly further in 2004, the "status-quo" impact in the next fiscal year would be even higher. Keep in mind, however, that this back-of-the-envelope analysis merely isolates the effect of the Canadian dollar. Other factors, such as an unexpected surge in world commodity prices and lower-than-expected interest rates, are providing offsetting fiscal benefits to the governments of the west in the form of higher revenues and lower debt-service costs. In fact, in energy-heavy Alberta, the revenue boon from higher energy prices is dwarfing the negative fiscal impact arising from the strong Canadian dollar, leaving the government with a surplus of roughly $3 billion.

SENSITIVITY OF FISCAL OUTLOOK TO ECONOMIC SHOCKS
Millions of Dollars

	Federal Government	Ontario Government
1% drop in real GDP	-2,500	-610
1% drop in GDP inflation	-1,400	n/a
1% drop in interest rates	800	80

Negative means deterioration in budget balance
Positive means improvement in budget balance
Source: Federal Department of Finance, Ontario Ministry of Finance, TD Economics

SENSITIVITY OF FISCAL OUTLOOK TO THE CANADIAN DOLLAR
Millions of Dollars

	B.C. Government	Alberta Government
1 U.S. cent rise	-75	-100

Negative means deterioration in budget balance
Positive means improvement in budget balance
Source: Government budgets

While most other jurisdictions do not provide any estimates of fiscal impacts from changes in economic assumptions, the federal and Ontario governments do predict those on GDP and interest rates (see table). In those cases, the fiscal impact of the recent change in the Canadian dollar can still be deduced, albeit more indirectly by first "guessing" the effect of the Canadian dollar on GDP and interest rates, and then translating that change into a bottom-line impact.

A middle-of-the-road estimate of the impact of the 20-per-cent jump in the loonie on real output growth is a hit of 2 percentage points in each of 2003 and 2004. That means that for 2004, the level of real GDP would be down 4 per cent from what might have prevailed in the absence of the appreciation. On the same basis, the loonie's jump might be depressing the rate of inflation, as measured by the broad deflator for GDP, by 1 percentage point in each of 2003 and 2004. That would leave the price level down 2 per cent. Putting the real output and price effects together, the level of nominal output is down 6 per cent in 2004 from what it would have been if the dollar had remained around where it closed 2002. With nominal GDP in the Canadian economy exceeding $1 trillion, that's more than a $60 billion loss in nominal output or income.

The federal government takes out roughly one dollar for every six dollars of nominal economic activity across the country. Collectively, the provinces do about the same. So a $60 billion income loss would translate into a $10 billion revenue hit for the federal government in 2004-05. The hit for all the provinces together would be about the same. The hit on Ontario alone could exceed $4 billion.

The results from the above simple calculations can be compared to the reduced-form estimates provided by the Federal and Ontario governments. At $2.5 billion for each 1 per cent loss in real output, the 4 per cent hit for 2004

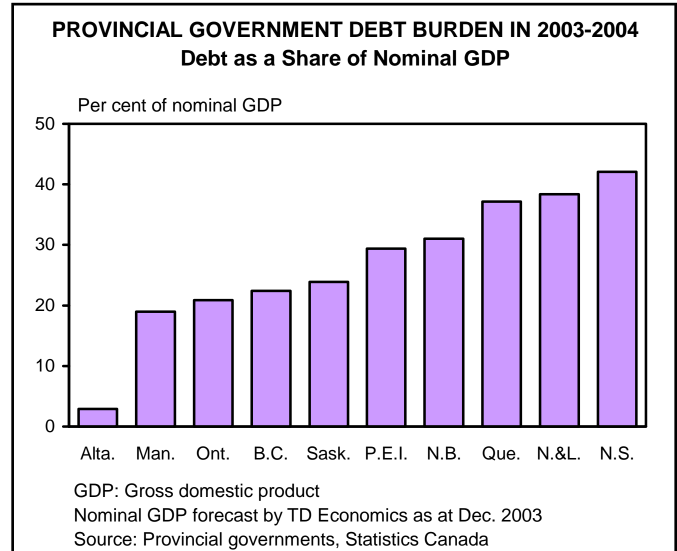
would lower the federal budgetary balance by $10 billion. At $1.4 billion for each 1 per cent hit to the GDP deflator, the 2 per cent estimated impact for 2004 would cause a deterioration in the federal balance of $2.8 billion. Together, the hits on real output and prices would lower the federal balance in 2004-05 $12.8 billion. The 4 per cent hit to national output could well translate into a 5 per cent output loss for Ontario, given its large export-oriented manufacturing sector and the net, negative hit on its economy of higher commodity prices. At $610 million for each 1 per cent of output loss, that would lower Ontario's budget balance $3.1 billion. Ontario does not provide an estimate for the hit to the GDP deflator.

The impacts from these simple calculations and the reduced-form results are clearly huge. They must, however, be taken with more than a few grains of salt. They only capture the partial impact of the dollar's rise. Further, they ignore the links between the various shocks that are affecting fiscal positions. Interest rates would not be so low if it were not for the dollar's rise and it would have been unusual for the dollar not to have risen given the commodity price surge. So it can give a distorted picture to try to estimate the impact of each development in isolation from the overall economic scenario.

That being said, we would not want to leave an exaggerated impression of some of the offsets to the fiscal hit. For example, it is unlikely that interest rates today would be more than 200 basis points higher had the rise in the Canadian dollar not occurred. At $800 million per 100 basis points, that suggests that the maximum savings to the federal government from lower payments on the public debt is $1.6 billion. This pales relative to the hit on revenues.

Fiscal Updates in fiscal 2003-04 provide glimpse of C$ impact

Regardless of any estimates derived through rough calculations, recent fiscal updates have left little doubt that the Canadian dollar – in combination with other unanticipated shocks this year – is indeed squeezing federal and provincial government fiscal positions. In Ontario, for example, the government's mid-year update showed that weaker-than-expected economic activity shaved revenues by $1 billion in fiscal 2003-04, while in Quebec, the comparable figure was $400 million. In its Fall Economic and Fiscal Update, the federal government revealed its revenue forecast had been cut by $4 billion this year, and almost $7 billion next year, compared to the corresponding projections released at the time of the February 2003 budget. At the same time, however, debt-service costs were marked down by $1.5 billion and $2.2 billion in fiscal 2003-04 and fiscal 2004-05, respectively, which helped to cushion the blow. In any event, the federal government now has very little room to maneuver. After coming in at a higher-than-expected $7 billion last year, the federal surplus is expected to dwindle to about $1 billion this year – after taking into account the government's promise to hand over to the provinces $2 billion in health care funding at fiscal year-end. Next year, the federal surplus is projected to rise only slightly, to $3.0 billion, or zero after deducting the government's customary $3-billion contingency reserve.



Fiscal Conclusions

The federal and most provincial governments are likely to experience at least some net negative impact from this year's strengthening of the Canadian dollar, both directly through the channel of lower output and prices, and indirectly, through weaker equalization revenues. These negative impacts will be offset to some extent by lower interest payments on debt, and particularly in those provinces that have large debt-loads or high exposure to U.S.-dollar borrowing.

VII. High-flying loonie will impact investors

The rapid appreciation in the Canadian dollar has had, and will continue to have, significant implications for in-

vestors. The most obvious and immediate impact of the stronger currency has been to reduce the financial returns received by Canadians from their foreign investments, particularly U.S. dollar denominated assets. Moreover, the higher exchange rate has dampened Canadian corporate profit growth, constraining the upside on equities. The stronger currency has also tempered the pace of inflation, which has several financial market implications. Specifically, the low inflation environment has allowed the central bank to keep monetary policy at a highly stimulative setting, which has depressed the rate of return on money market investments. At the same time, it has limited the rise in bond yields by restraining the inflation premium demanded on fixed-income assets. Lastly, the tame inflation backdrop has been supportive to the real return delivered by investments. All of these trends will remain in place, but will be less pronounced, in the coming year.

RATES OF RETURN BY ASSET CLASS

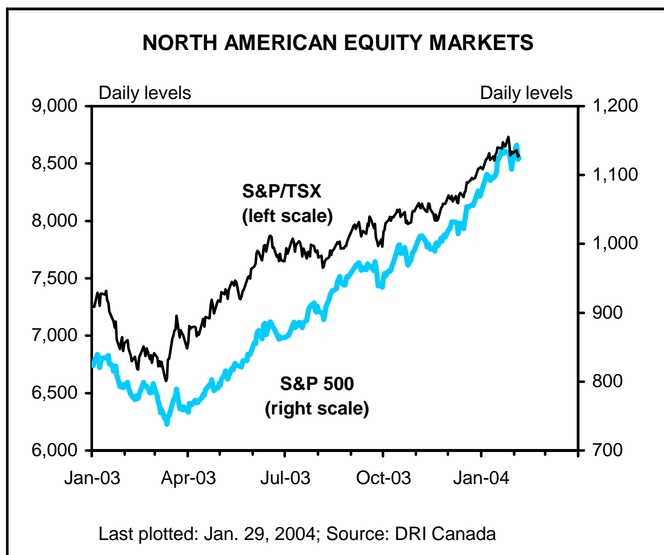
	Cash	Bonds	Cdn. Equities	U.S. Equities	Int'l Equities	Canadian Dollar
	3-mth T-bills	SCM Bond Index	S&P/TSX	S&P500	EAFE	USD per CAD
2000	5.45	10.24	7.41	-9.10	-13.96	-3.10
2001	1.93	8.08	-12.57	-11.89	-21.21	-5.84
2002	2.52	8.73	-12.44	-22.10	-15.66	0.79
2003	2.86	6.69	26.72	28.68	39.17	22.26

Returns are the annual per cent change from Dec. to Dec. except for Cash which is the average annual yield.
Source: DRI-Wefa Canada, TD Economics

Rising Canadian dollar reduces returns on foreign assets

As part of a well diversified portfolio, Canadians have been encouraged to hold foreign assets. This makes perfect sense, as Canada represents only roughly 3 per cent of the world's capital markets. And, increases to the foreign content limits in Registered Savings Plans (RSPs), which rose from 20 per cent in the late 1990s to 30 per cent in March 2002, likely increased the attraction of investing abroad. Overall, it would appear that the message has been well received, as illustrated by the 350 per cent increase in Canadian holdings of foreign bonds and stocks since 1992. With the United States representing the largest capital market in the world, it is also not surprising that Canadians have been purchasing large quantities of U.S. dollar denominated financial assets. Canadian holdings of U.S. stocks and bonds amounted to $148 billion in 2002, up 220 per cent from a decade earlier. It should be noted that the bulk of these investments were held by institutional investors (such as pension funds and mutual funds) on behalf of individual Canadians.

NORTH AMERICAN EQUITY MARKETS



Last plotted: Jan. 29, 2004; Source: DRI Canada

These foreign financial assets provide Canadians with a return on investment, whether through interest and dividend payments, or capital gains. However, movements in exchange rates also affect the returns received by Canadians when translated into the domestic currency. Indeed, during the last decade, the downward trend in the Canadian dollar provided a major lift to the returns earned by Canadians on U.S. dollar denominated assets. For example, in addition to the regular coupon payments, a Canadian investor who bought a 10-year U.S. federal government bond in December 1991 earned an additional 27 per cent return on the principal payment at maturity because of the depreciation in the Canadian dollar over the life of the bond. However, the tide has now turned, with the result that the rapid increase in the Canadian dollar has significantly reduced the returns on U.S. dollar assets. A U.S. equity mutual fund that replicated the performance of the S&P500 in 2003 delivered a total return of 28 per cent, but a Canadian investors received only 6 per cent after removing the impact of the increase in the Canada-U.S. dollar exchange rate.

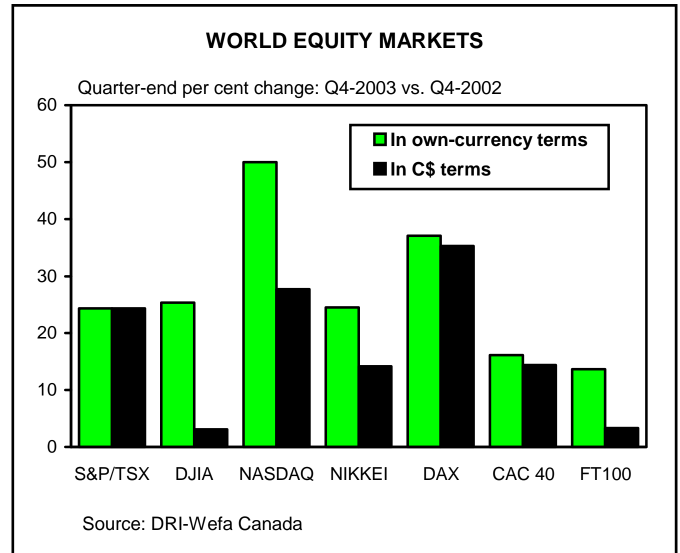
However, it is important to note that the foreign exchange impact is largely felt when the securities are sold. For example, a Canadian buying U.S. dollar denominated

shares on December 31, 2002 and selling them on December 31, 2003 would have lost 22 percentage points on the exchange rate. On the other hand, if the securities had been bought on December 31, 1999 and sold on December 31, 2003, the currency appreciation would have reduced the return by only 12 percentage points, while a purchase in January 1993 and sale in December 2003 faced virtually no impact from the movement in the exchange rate.

That said, any income derived from the investments will be affected by foreign exchange movements between the time of purchase and the time of sale. For example, income received through coupon payments from bonds or dividends from shares will be affected by the exchange rate when the investor translates the funds into the domestic currency.

Mutual funds are no different. Investments held by the fund only incur a foreign exchange gain/loss when sold. However, when reporting the performance of Canadian mutual funds with foreign investments, it is industry practice to value those investments in Canadian dollars. Accordingly, the performance of the fund over any stipulated timeframe will show the return including currency effects, even though the foreign exchange impact has not be realized. So, the only difference between mutual funds and direct holdings of stocks and bonds is that the former are reported on the basis of the current market value in Canadian dollars, while for the latter it is left to investors to determine the current value of their foreign holdings of stocks and bonds when translated into the domestic currency.

Up to this point, the discussion has focused on the impact of the stronger Canadian dollar relative to the U.S. dollar. However, investors also have holdings of non-U.S. foreign financial assets. For these investments, it is not the Canada-U.S. dollar exchange rate that matters, but the cross rate against the local foreign currency. And, in most cases, the strengthening in the Canadian dollar on this front has been much less severe. To illustrate, over the course of 2003, the Canadian dollar appreciated by close to 10 per cent vis-à-vis the Japanese yen and the U.K. pound, but only 2 per cent relative to the euro. So, the negative foreign exchange effects on Japanese yen or U.K. pound denominated assets was roughly half that on U.S. dollar investments, while the negative impact on euro investments was quite modest. However, the actual impact on investments will depend upon the timing of the purchase and sale. To illustrate, while euro investments lost 2 per cent of their value when expressed in Canadian dollars last year, the story changes dramatically over a two-year horizon, as the Canadian dollar has weakened by more than 20 per cent compared to the euro – significantly lifting the returns provided by euro denominated investments over that time horizon.



Given the diverse performance of the Canadian dollar relative to various world currencies, one might ask how big an impact the strengthening in the loonie likely had on the portfolios of Canadians as a whole in 2003. According to Canada's International Investment Position data from Statistics Canada, Canadians held $259 billion in foreign stocks and bonds in 2002. Of these, 57 per cent were U.S. assets, with the remaining 43 per cent from numerous countries around the globe. It is important to note that large institutional investors held the vast majority of the foreign securities. Nevertheless, to the extent that these institutional investors represent pension funds, life insurance companies and segregated funds, they can be considered to be holding the investments indirectly for individual Canadians. Applying the percentage change in the Canadian dollar to the percentage holdings by geographic region suggests that while U.S. dollar investments lost 22 per cent on the exchange rate move in 2003, the weighted average of overall foreign investment holdings experienced a more moderate, but still significant, 16 per cent decline.

However, the impact on personal finances was considerably more modest. For the vast majority of Canadians,

holdings of foreign assets are likely less than 30 per cent of their portfolios. Indeed, pension funds are restricted to 30 per cent foreign content, and individuals do not maximize their 30 per cent foreign allowance in their RSPs. Accordingly, the strengthening in the Canadian dollar is likely to have reduced the returns on portfolios by less than 5 percentage points in 2003. Given that domestic and foreign equities, excluding foreign exchange effects, delivered a strong double digit gain last year and bonds provided a high single digit return, it is evident that the strengthening in the Canadian dollar only modestly dented the overall performance of personal balance sheets last year.

Looking ahead, we expect the Canadian dollar to continue to strengthen relative to the U.S dollar, but the bulk of the rally is already past. Indeed, the loonie is expected to end this year at close to 79 U.S. cents, which represents a close to 5 per cent appreciation. This will dampen returns on U.S. investments when translated back into Canadian dollars. This foreign exchange movement is likely to offset any outperformance by U.S. equities in the coming year and suggests that Canadian fixed income products will deliver a better rate of return than their U.S. counterparts, when expressed in terms of the domestic currency. Relative to overseas currencies, however, the Canadian dollar is unlikely to strengthen significantly, as the other currencies will also benefit from further U.S. dollar weakness. And, if Canadian portfolios were, in aggregate, only moderately affected by the strong rally in 2003, then the foreign exchange impact on Canadian portfolios in 2004 should prove quite limited.

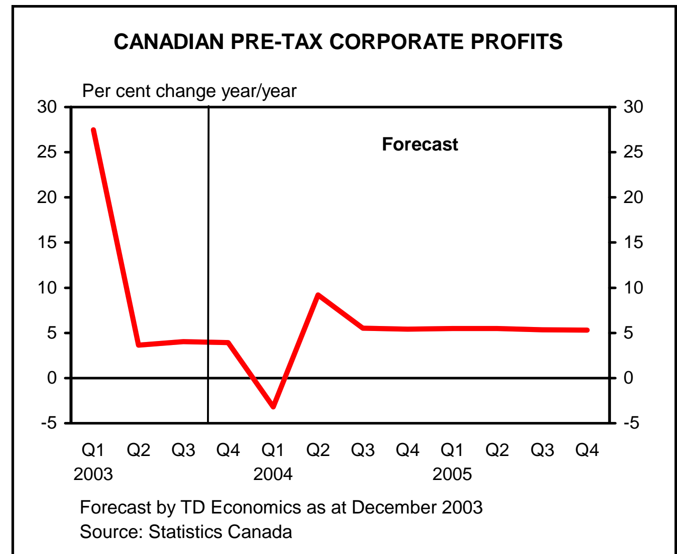
Canadian dollar will affect domestic asset returns

The performance of the Canadian dollar will also im-

CANADIAN DOLLAR OUTLOOK

		2001	2002	2003	2004f	2005f
U.S. dollar	USD/CAD	0.628	0.633	0.774	0.790	0.790
Japanese yen	JPY/CAD	82	75	83	83	79
Euro	CAD/EUR	1.417	1.657	1.628	1.671	1.709
U.K. pound	CAD/GBP	2.32	2.54	2.31	2.40	2.39
Swiss franc	CHF/CAD	1.042	0.876	0.958	0.941	0.925
Australian dollar	AUD/CAD	1.227	1.125	1.029	1.000	0.969
Mexican peso	MXN/CAD	5.75	6.60	8.70	8.41	8.30
Korean won	KRW/CAD	825	751	923	904	845

f: Forecast by TD Economics as at January 2004
All exchange rates are year-end values
Source: Federal Reserve of New York, TD Economics



pact the returns on domestic financial investments in the coming year. The stronger Canadian dollar will dampen corporate profit growth, constraining the upside to Canadian equities. As already mentioned, not all industries will be equally affected. For example, export-oriented manufacturers are likely to underperform services and domestic-oriented businesses that do not face direct competition from U.S. imports.

The higher exchange rate will also impact fixed income markets through several channels. Specifically, the stronger Canadian dollar is contributing to falling import prices. To the extent that the lower import prices are passed along to consumers, the result will be a slower pace of inflation than would have been present without the appreciation in the currency. Overall, we expect core inflation to dip slightly in the coming months and only creep slowly back up to a 2 per cent pace in 2005. By helping to keep inflation well contained, the Canadian dollar will provide the Bank of Canada with the flexibility to lower its overnight rate by a quarter point to 2.25 per cent on March 2nd and then keep monetary policy on hold until the fourth quarter of this year, when a gradual tightening cycle will begin. As a result, the return on money market investments will remain meagre. Overall, the yield on 3-month T-bills is expected to average 2.35 per cent over the course of 2004, well below the long-term average of 4.60 per cent.

The stronger Canadian dollar will also impact bond yields. Canadian bond yields will still grind higher in the coming year, in response to rising yields in the United States – Canadian bonds are traded as spread products vis-

à-vis U.S. Treasuries – and in reaction to a gradual acceleration in Canadian economic growth that will trigger demand for a higher inflation premium on Canadian fixed income products. However, by helping to keep inflation in check, the higher exchange rate will limit the increase in the inflation premium demanded on Canadian bonds. Moreover, by allowing the Bank of Canada to maintain monetary policy at a highly accomodative stance, the stronger Canadian dollar will also constrain the rise in bond yields, particularly on shorter-dated instruments. Lastly, the Canadian dollar may also benefit domestic bonds by making them more attractive to U.S. investors. After all, if the Canadian dollar strengthens by a further 5 per cent relative to the U.S. dollar, then U.S. investors in Canadian fixed-income products will receive a higher return when translated back into their domestic currency.

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ENDNOTES

[1] See Laidler, David and Mark Chandler (1995), "Too Much Noise: The Debate on Foreign Exchange Rate Variability and Policies to Control It", C.D. Howe Institute Commentary, October 1995

[2] For the foundations of the Bank of Canada's model, see:

Amano, R. & van Norden, S. (1993) A forecasting equation for the Canada-U.S. dollar exchange rate. In *The Exchange Rate and the Economy.* Proceedings of a conference held at the Bank of Canada 22-23 June 1992. Ottawa: Bank of Canada

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[3] Dion, Richard (1999-2000), "Trends in Canada's Merchandise Trade" *Bank of Canada Review,* Winter, 29-41

Bank of Canada, *Monetary Policy Report,* October 2003, p.24

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