TD Bank Financial Group

TD Economics

Special Report

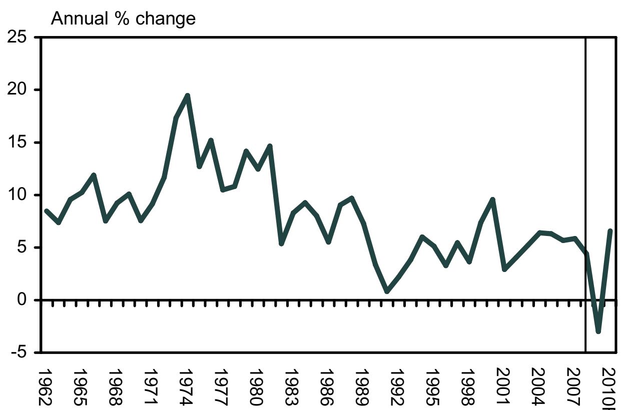
December 4, 2008

WHEN THE COMMODITY BOOM GOES BUST

The dramatic rise in commodity prices that took place between 2002 and mid-2008 had a profound effect on the Canadian economy. Higher prices for energy, agricultural products, metals and minerals increased income across the country and were an important driver of domestic demand. The slowdown in global economic growth that has taken shape over the second half of 2008 has resulted in a dramatic and broad-based reversal in commodity prices. The TD Commodity Price Index (TDCI), which reached a peak in June of this year, has lost 46% of its value as of late November and is expected to continue to decline further as the global economic recession worsens into early 2009.[1]

This fall in commodity prices has important implications for the Canadian economy. Because commodity prices are reported in real time, we can already measure the likely impact of the fall on export prices in the final quarter of this year. We estimate that the reversal in commodity prices will cause export prices to decline at an annualized rate of more than 25% in the final quarter of 2008[2]. Based on our commodity price and Canadian dollar forecasts, export prices will fall an additional 15%-20% (annualized) in the first quarter of 2009. In addition, the decline in the Canadian dollar has put upward pressure on import prices. The combination of lower export prices and rising import prices will be enough to push the overall price of GDP below its level in 2008 and lead to an overall contraction in nominal GDP of close to 3% in 2009. This will mark the first occasion in the history of the series going back to 1961 that Canadian aggregate nominal income has fallen on an annual average basis. In an economy of over $1.6 trillion,

CANADIAN NOMINAL GROSS DOMESTIC PRODUCT



Source: Statistics Canada, TD Economics

HIGHLIGHTS

- **Booming commodity prices have been a key support to income growth in Canada over the past several years.**
- **The fall in commodity prices as a result of the global economic downturn will result in a striking pull back in export prices over the next several quarters.**
- **Falling prices in addition to declining real activity will lead nominal GDP in Canada to contract for the first time on record.**
- **The reversal of Canada's terms of trade implies real incomes in Canada will fall as well, leading to dramatically slower pace of domestic demand over the next year.**
- **Government revenues, which are based on nominal GDP, will also fall dramatically, raising significantly the risks of deficits, particularly in commodity rich provinces.**
- **Canada will enter a recession beginning in the fourth quarter of this year and will not see much improvement until 2010.**

> **More Than One Way to Measure an Economy**
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> Gross Domestic Product (GDP) measures how much Canada earns through domestic production. Economic activity is conventionally measured as real GDP, which removes the effect of inflation. But it is also useful to examine nominal GDP, which captures the value of production without deflating by price changes. Nominal GDP more directly determines corporate and personal incomes and government revenues. Economic activity can also be examined by real Gross Domestic Income (GDI). Real GDI is a measure of the goods and services that domestic income can buy. Essentially it captures real GDP plus trading gains. When the price of exports rises or the price of imports falls, it allows Canada to import more goods without having to export more. This would be a trading gain. In this circumstance real GDI would rise faster than real GDP. If the price of exports falls or the price of imports rises, there would be a trading loss and real GDI would increase more slowly than real GDP

this is equivalent to subtracting $49 billion in national income.

Trading spaces

Canada is dependent on international trade. As a percentage of nominal GDP, trade represents one-third of the Canadian economy (exports are 36%, while imports are 33%). The difference between exports and imports is Canada's trade-surplus, which as of the third quarter of 2008 stood at 2.5% of nominal GDP. Because Canada has such a large dependence on global trading partners, both as purchasers of Canadian goods and as suppliers of foreign goods to Canada, changes in the relative price of exports and imports have a large impact on the economic well-being of Canadians.

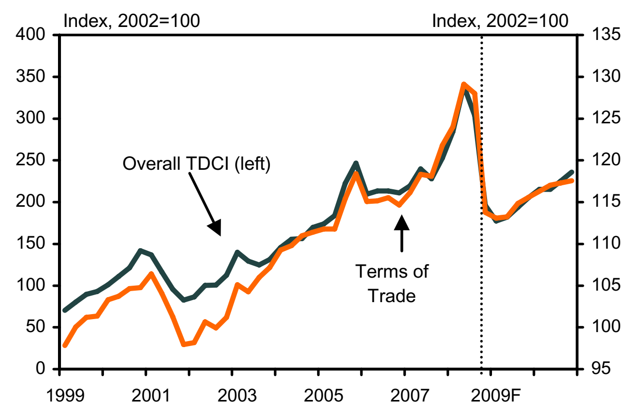
Rising commodity prices have contributed to income gains in Canada through two main channels. First, companies involved in extracting commodities have seen higher profit growth, which has in turn fueled capital projects and driven wage gains and government tax revenues. Secondly, the combination of rising income and international recognition of Canada as a commodity producer has driven up the value of the Canadian dollar, making imports of foreign goods cheaper for Canadian businesses and households. In fact, in the last five years the fall in import prices has been even more profound than the rise in export prices. While export prices have risen at an annual average rate of 0.9%, import prices have fallen by 2.5% annually. The integration of China into global trade has added to the impact of the rising Canadian dollar, further helping to bring about lower import prices and raising the purchasing power of Canadians.

The rise in commodity prices has also been an important contributor to the wealth of Canadians. Primarily as a result of rising prices, the share of natural resources in the TSX has risen from close to 20% in 2003 to more than 50% in the first half of 2008.[3] The overweighting of commodities and their meteoric rise has also driven the TSX to outperform many of its international counterparts. Between the end of 2002 and 2007, the TSX composite index rose at an annual average pace of 15.9%, nearly doubling the gains in the S&P 500 (at an annual average pace of 8.2%) and the Dow-Jones (at 7.4%).

Boomtown

Perhaps the best measure of the impact of the rise in commodity prices on the Canadian economy is the improvement in real gross domestic income (GDI). Real GDI takes into account changes in the relative price of exports to imports on the purchasing power of GDP. An increase in Canada's terms of trade – the price of exports relative to imports – has a similar effect on the Canadian economy as an increase in productivity: Canadians can purchase more goods and services for a given level of input. Between 2002 and 2007 real GDI grew at an annual average pace of 3.9% compared to real GDP growth of 2.7%. The impact of this buoyant income growth has been felt on all

TD COMMODITY PRICE INDEX & CANADIAN TERMS OF TRADE



*Index of 18 Canadian resource commodity prices in US$;
Source: TD Economics; Last actual: 2008Q3; Forecast as at Nov. 08.

sectors of the domestic Canadian economy:

- Between 2002 and 2007, real consumer spending in Canada grew by an average 3.7% annually, outpacing annual average real GDP growth by a full percentage point.
- Real business spending grew at an annual pace of 6.7%. Business investment on machinery and equipment (M&E) in particular benefited from lower import prices afforded by the rising Canadian dollar and rose by 9.6% annually.[4]
- Federal government revenues increased at an annual pace of 6.8% allowing for an accumulation of surpluses amidst spending growth of 6.7%.

Higher commodity prices have also had important regional and sectoral effects, pulling resources and people into commodity focused regions and sectors while raising costs and speeding adjustment in the manufacturing sector. Despite the decline in manufacturing, gains in wealth and income have buoyed demand and employment in the services sector and flexible labour markets have pushed unemployment rates down across the country.

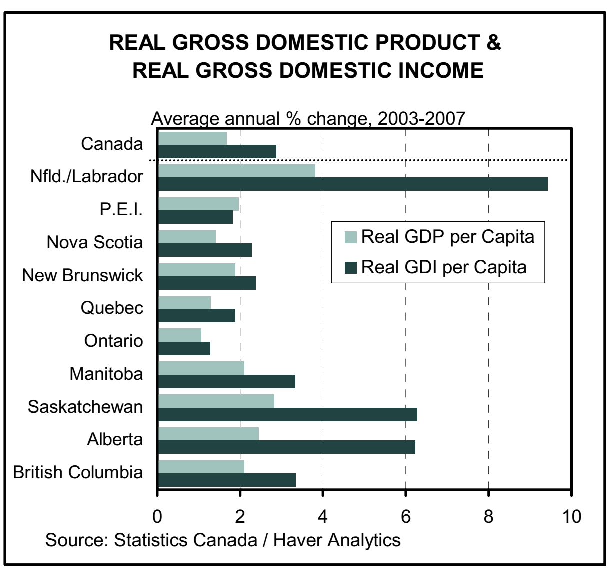
Boom turns to bust

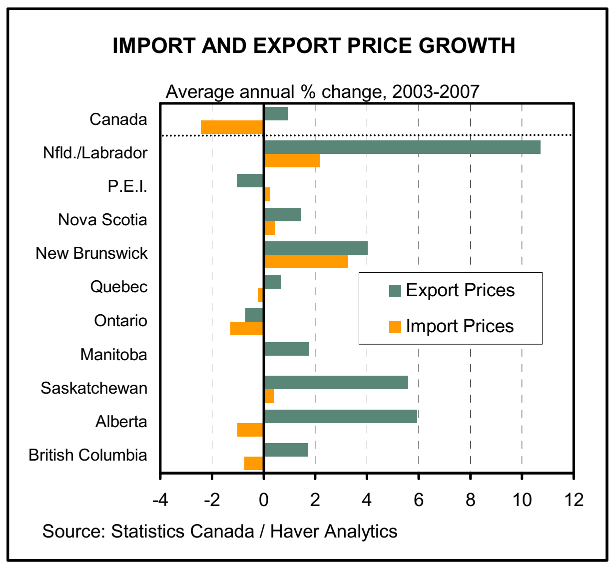
The current global economic downturn has led to a rapid reversal of price gains in the vast majority of the commodities produced in Canada. While the rise and fall of oil prices (which after peaking at over $140 U.S a barrel in early July has fallen close to 65% to below $50 U.S. as of late November) has gained the most attention, no com-

Trading gains more evident in commodity rich regions

While looking at the increase in income growth illustrates in broad strokes that the rise in commodity prices has been positive for the Canadian economy, this does not mean that the benefits have been shared equally across regions (nor will the pain from their reversal).

Nowhere is this more evident than in the disparity between real GDI and real GDP growth across the country. As the chart shows, between 2002 and 2007, the regions that have benefited most spectacularly from trading gains are those where commodity production has the largest role. Nonetheless, every province, with the exception of Prince Edward Island, has had higher growth





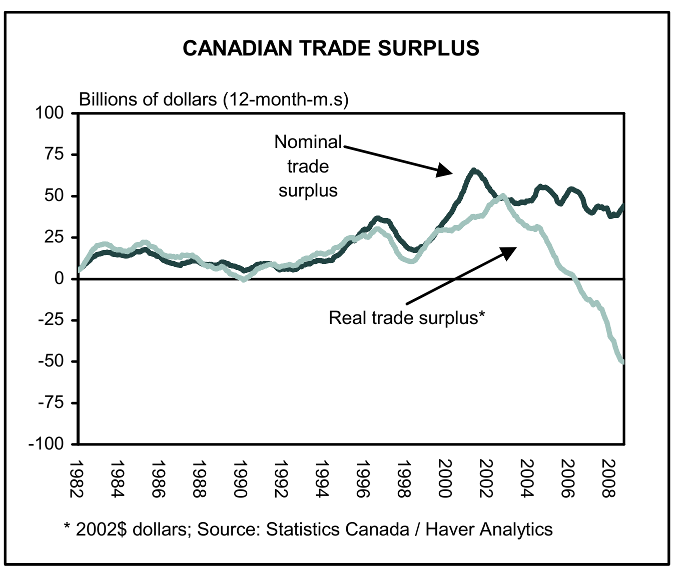
in real GDI per capita than in real GDP.[5]

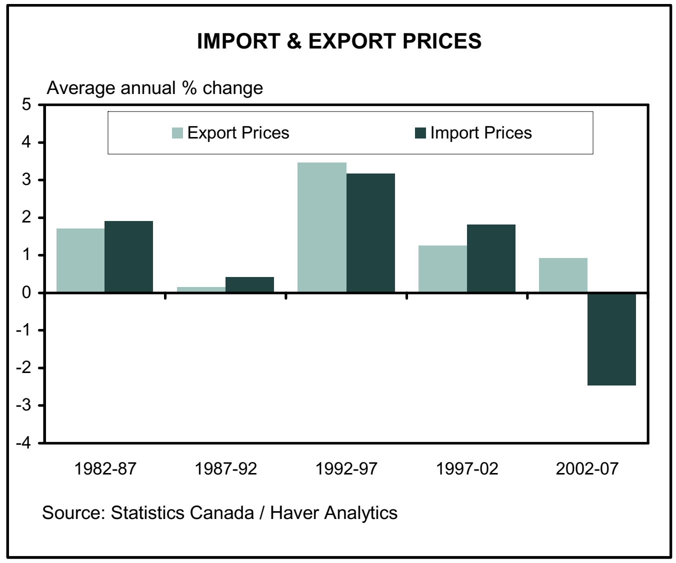
Just as the rise in commodity prices led to outsized expansions in the purchasing power of commodity rich provinces, so too will the reversal be more intense in these regions. For Alberta and Newfoundland and Labrador, the fall in incomes will be the greatest, whereas in Central Canada, the decline will be more muted. While the fall in the value of the Canadian dollar will increase the competitiveness of non-resource manufacturers in Central Canada, the current pullback in U.S. demand will continue to be the dominant factor influencing manufacturing.

modity group has been spared. Non-precious metals have fallen close to 60% from their peak and agricultural prices are down over 40%. (For more on the outlook for commodity prices please refer to TD Economics' Quarterly Commodity Price Report).

Largely as a result of falling commodity prices, the Canadian dollar has depreciated by more than 25% from its peak in November of last year. The rewind in commodity prices and the Canadian dollar implies a significant reversal in Canada's terms-of-trade over the second half of this year and into early 2009. From September to November the overall TDCI fell by close to 30% in U.S. dollars and 20% in Canadian dollars. For the quarter as a whole, commodity prices (in Canadian dollars) will likely fall by 25% from their average level in the previous quarter. This deep price correction will lead to a decline in overall export prices of more than 8%.

At the same time, the fall in the Canadian dollar puts upward pressure on import prices. In November, the Canadian dollar traded at an average $0.82 against the U.S. dollar, down 15% from an average value of $0.96 in the third quarter. While commodities also enter as imports into Canada, at 20% of total goods imports, their importance is half of what it is on the export side, curbing the downside to import prices. The largest component of imports is machinery and equipment with a 27% share. As illustrated in the graph, machinery and equipment prices move very close in line with movements in the nominal exchange rate. A 14% fall in the value of the Canadian dollar, will likely cause a similar gain in the imported cost of machinery and equipment. All told, the fall in the Canadian dollar will likely lead

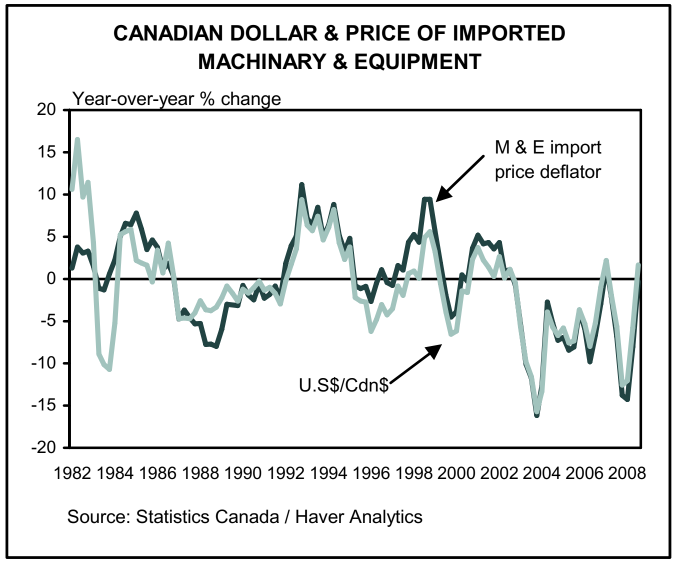




to an increase in imported goods prices of close to 5% in the fourth quarter of this year.

In this economic environment, in order for the overall GDP deflator– the broadest measure of the prices of goods and services produced in Canada - to contract, the impact of the fall in export prices (relative to import prices) must be greater than that of the overall rise in prices in the domestic economy. Inflation in the domestic economy is equal to the change in the prices of consumer goods and services, business investment and government expenditures. On the consumer price front, falling commodity prices would in isolation tend to lower consumer price inflation. However, given that the Canadian dollar has depreciated, this effect is offset to the extent that higher import prices are passed-through to consumer prices. Recent research suggests that while exchange rate pass-through to import prices has remained relatively steady in Canada, the pass-through to consumer prices has diminished noticeably[6].The effectiveness of the Bank of Canada in anchoring inflation expectations is one reason for diminished pass-through. This is particularly evident through the 1990s when the Canadian dollar fell at an average annual pace of 3%, import prices rose by a corresponding 3%, but the PCE deflator rose by only 2% and CPI by only 1.7% annually. Similarly, in the last five years as the Canadian dollar has appreciated and import prices have fallen, consumer price growth has remained anchored at 2.2% and core consumer price inflation at 1.7%.

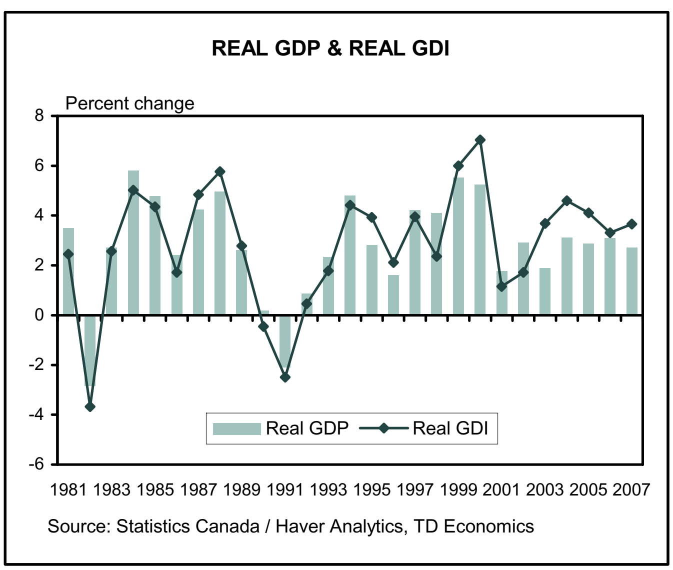
Prices for business investment on machinery and equipment on the other hand, are more responsive to movements in import prices and this is one area where domestic price pressures are likely to increase over the near-term. As the vast majority of machinery and equipment is imported, the dollar's fall will push up machinery and equipment prices. Historically, a 1% appreciation in the Canadian dollar corresponds with 0.8% fall in the price of machinery and equipment in Canada. Now that the dollar is falling, this impact will act in reverse, pushing up the price of machinery and equipment investment. However, as machinery and equipment investment represents only 10% of overall GDP, this price pressure will not be enough to offset the downward pressure on prices elsewhere in the economy. The other major component of business investment is structures, which is much less exposed to import price pressures and will likely be overcome by the slowdown in real activity in this sector.



Source: Statistics Canada / Haver Analytics

Does this mean deflation in Canada?

The correction in commodity prices in addition to relatively benign domestic price pressures mean that even if the Canadian economy pulls through the current global financial crisis with a relatively mild contraction in real GDP, the GDP deflator is also expected to decline. As a result, the decline in nominal GDP will be even greater than the contraction in real GDP, and will likely be so by more than two percentage points. This in itself is a significant event, not having occurred in the forty-seven year history of the series. What is more, this will mark the first occasion that nominal GDP has ever fallen on an annual average basis. Up until now, the slowest growth of nominal GDP was in 1990 at +0.8%. The cause of falling nominal GDP is also important, because the wedge between real economic activity and nominal GDP will not be falling domestic prices, but rather falling export prices. This means that real incomes in Canada will also decline as a result of falling prices. Over the past five years, real personal disposable income (PDI) has grown at an annual average pace of close to 4%, supporting equally strong real spending growth. Falling commodity prices will likely lead to the first contraction in real PDI since the mid-1990s, raising the risk of the first contraction in real consumer spending in Canada since the 1990s recession.



Source: Statistics Canada / Haver Analytics, TD Economics

For businesses, higher commodity prices have also been a boon to profits. While commodity prices impact businesses differently depending on whether they are an output or an input into production, we estimate that in aggregate a $1.00 rise in total non-energy commodities boosts corporate profits by close to $0.46, while energy prices are slightly less positive but still boost total profits by close to $0.30. Faced with lower profits and upward pressure on inputs from a falling Canadian dollar, the outlook for business investment is decidedly more sour over the next several quarters. Having noted the impact on income and profit growth, the link to governments is direct – falling corporate profits and incomes mean a declining tax-base, falling revenues and a likely replacement of surpluses with deficits.

In a recent piece (available on the TD website) we considered the possibility of a deflationary spiral in the United States. For several reasons, the risks of this outcome for Canada are less significant. For one, U.S. consumers have already pulled back on spending and have seen a much worse deterioration in labour markets than has occurred in Canada. While job losses are likely just around the corner in Canada, the unemployment rate currently sits at a relatively low historical level and tighter labour markets limit the risks of deflation. Secondly, deflation represents the inability of the monetary authority to stimulate aggregate demand. This requires both a very low nominal level of interest rates and severe stresses in credit markets and reluctance by financial institutions to pass the lower cost of lending on to consumers. This is the case in the U.S. where the effective Federal Funds rate is close to 0.5% and where credit conditions remain extremely tight. In Canada, the target for the overnight rate sits at 2.25%, giving the Bank of Canada more room to cut interest rates. Moreover, the stresses on the Canadian financial system have been less severe and credit has continued to flow to Canadian consumers. Inflation expectations play a key role in deciding the future path of inflation. The Bank of Canada's sole mandate of ensuring price stability is just as an important in disinflationary periods as in periods of rising prices. Simply by informing markets of their mandate can go a long way in insuring inflation remains "low, stable, and predictable." Finally, while commodity prices are expected to fall over the near term we do expect a rebound. Oil prices, which currently sit at $49 U.S. a barrel are expected to rise to $75 U.S. by the end of 2010.

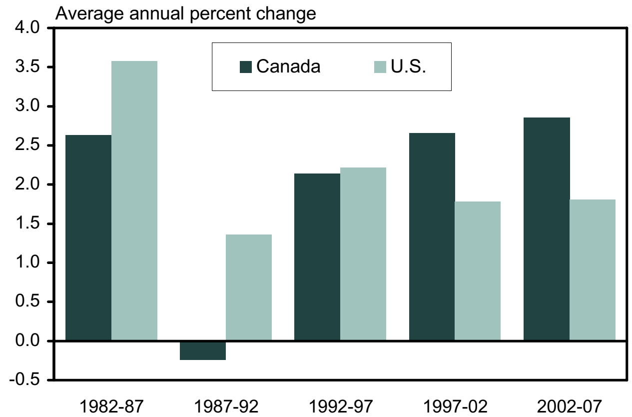
Levels matter too

The reversal in commodity prices over the second half of 2008 must be taken in the context of the strong run up in prices over the course of the relatively long commodity price cycle. At its peak in the second quarter of this year the TD Commodity Price Index (in U.S. dollars) was up over 215% from its level in 2001. The economic downturn currently being experienced is expected to result in a fall of close to 50% from peak, but even at its bottom, prices will remain 65% above their level in 2001. In terms of the decline in export prices versus import prices, the terms of trade are likely to reverse to levels seen in mid-2004. In other words, the real purchasing power of Canadian households and businesses will still be higher than real GDP, even if it is closer in line than it is was before.

Bottom Line

Booming commodity prices have allowed for a strong expansion in the purchasing power of Canadian production. The reversal in commodity prices will inevitably result in lower prices for Canadian exports, which in turn will

REAL GROSS DOMESTIC INCOME PER CAPITA*



* In domestic currency
Source: Statistics Canada, U.S. Census Bureau, BEA.

result in declining national income over the next year. However, while the fall in export prices will lead nominal GDP to contract over the next year, this is not expected to lead to deflation in the domestic Canadian economy where monetary policy still remains effective. Nonetheless, rising commodity prices go a long way in explaining why domestic demand has held up better in Canada than in the United States. The U.S. wealth shock started in 2006 with house price declines; meanwhile, rising commodity prices were raising incomes and wealth in Canada. The Canadian wealth and income shock has only just begun and just as rising prices have benefited consumers, businesses and governments over the past five years, the prospects for each is decidedly more grim over the next several quarters. Governments across the country (and particularly in commodity based provinces) will likely see a much slower pace of revenue growth, increasing dramatically the risks of a return to deficits. Despite Canada's relatively well positioned financial sector, the Canadian economy's dependence on trade with other nations means it will be unable to avoid the impact of the global economic recession and will also enter a recession likely beginning in the fourth quarter of this year.

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Endnotes

1 The TDCI weights commodities by their share in nominal Canadian exports.

2 Exports are priced in Canadian dollars. Commodities are priced in U.S. so the fall in the Canadian dollar has cushioned the impact of the fall on export prices. The forecasted fall in export prices takes this effect into account. The TDCI in U.S. dollars is expected to fall by at annualized rate of 83%, while in Canadian dollars it will fall by 66% (annualized).

3 Cross, P. "The role of natural resources in Canada's economy." Canadian Economic Observer, November 2008. Catalogue no. 11-010-X.

4 The 7.3% annual rise in the Canadian dollar versus the U.S. resulted in 6.8% decline in the price of imported M&E over this period.

5 Macdonald, R. "The Resource Boom: Impacts on Provincial Purchasing Power." Statistics Canada-Economic Analysis Research Paper Series. Catalogue no. 11-624-M-No. 021.

6 Bouakez, H. & Rebei, N. "Has exchange rate pass-through really declined? Evidence from Canada." Journal of International Economics. Volume 75 (2). July 2008: 249-267.