OBSERVATION

TD Economics

May 16, 2012

OIL'S WELL BELOW A CERTAIN THRESHOLD

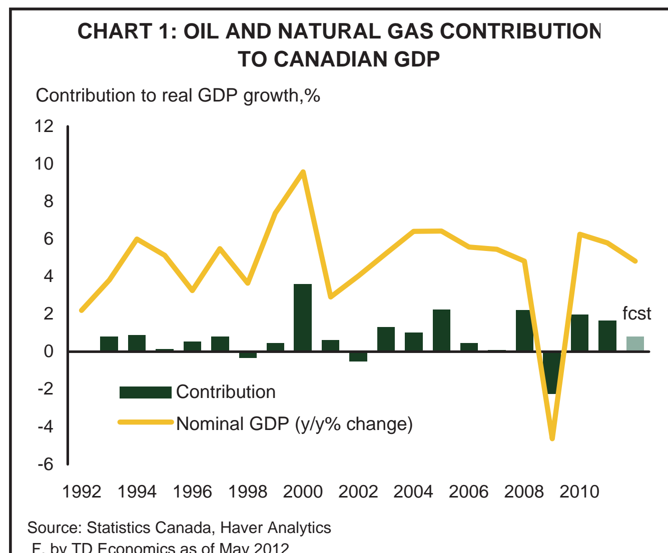
Examining the Impact of Crude Oil Price Movements on Canada's Economy

Highlights

- Given this country's status as an oil exporter, the traditional view is that Canada enjoys a net economic benefit from gradual increases in crude oil prices and suffers a net hit when prices decline.
- We find that when oil prices rally by more than 20% over a few months on non-fundamental factors, such as geopolitical concerns and/or speculation, the positive influences on economic growth are more than fully outweighed by negative influences. Based on this sensitivity, the 30% surge in prices observed since last autumn have not been constructive to Canada's economic expansion.
- While this is a useful rule of thumb, a more careful examination of the economic impacts of crude oil price movements should consider other underlying conditions, such as the nature of the shock, spreads between WTI and Canadian export prices, trends in the Canadian dollar and export volumes.
- Despite the recent dampening effect on real GDP growth of the run-up in prices, the oil industry in Canada continues to pull well beyond its weight in terms of economic activity, investment and jobs in this country.

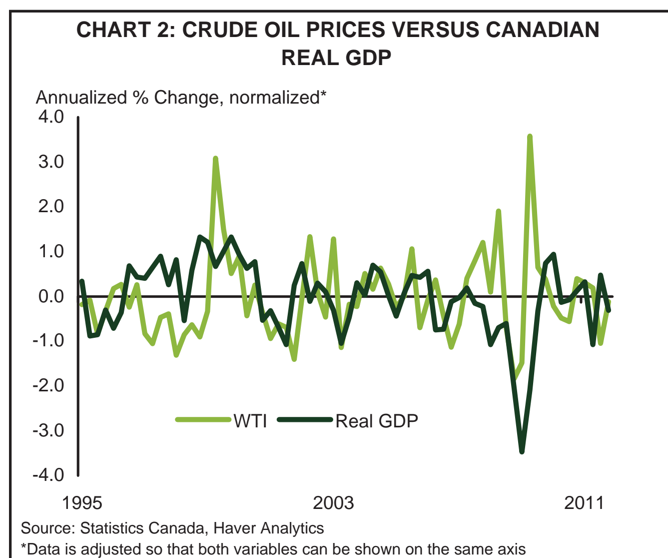
As with any relative price change, there are winners and losers. The economic impacts in Canada associated with movements in crude oil prices provides a solid case in point. Yet given this country's status as an oil exporter, the traditional view is that Canada enjoys a net economic benefit when crude oil prices rise and suffers a net hit when prices decline. Research by the Bank of Canada and others have shown that a 10% increase/decrease in the price of crude oil boosts/lowers Canadian real GDP by 0.1-0.3% percentage points, as the positive direct and indirect effects cascade across the economy[1,2].

In this vein, the significant increase in crude oil prices recorded since the lows during the recession – from US$40 per barrel to around US$100 per barrel – has been a key driver of Canada's economic recovery since 2009. We calculate that the contribution from increased exports of Canadian oil and investment in machinery and equipment and infrastructure in the Canadian oil sands alone accounted for a third of the economic growth experienced in 2010 and 2011. This estimate does not account for indirect effects from increased employment and income gains. And based on preliminary plans,



Source: Statistics Canada, Haver Analytics
F. by TD Economics as of May 2012

Derek Burleton, VP & Deputy Chief Economist, 416-982-2514
Diana Petramala, Economist, 416-982-6420



the oil and gas industry is expected to account for 16% of business investment in 2012 – up from 10% a decade ago.

Too much of a good thing

Even for a major exporting economy like Canada, higher prices are not always better. As prices rise beyond a certain point, the economic benefits to Canada become crowded out by the growing costs to oil-consuming regions in this country and its major trading partners, such as in the United States. Put another way, a tipping point is reached when the minuses outweigh the positives. Our research shows that based on historical experience this tipping point from a Canadian economic perspective occurs when the price of oil increases by more than 20% in a given quarter and is sustained for an extended period of time. Still, this relationship is not linear. Our modeling suggests a similar change in signs with respect to economic impacts does not occur in the case of oil price declines. We found that that both modest and steep price declines have generally exerted a drag on Canadian real GDP, with the latter obviously having a more pronounced effect.

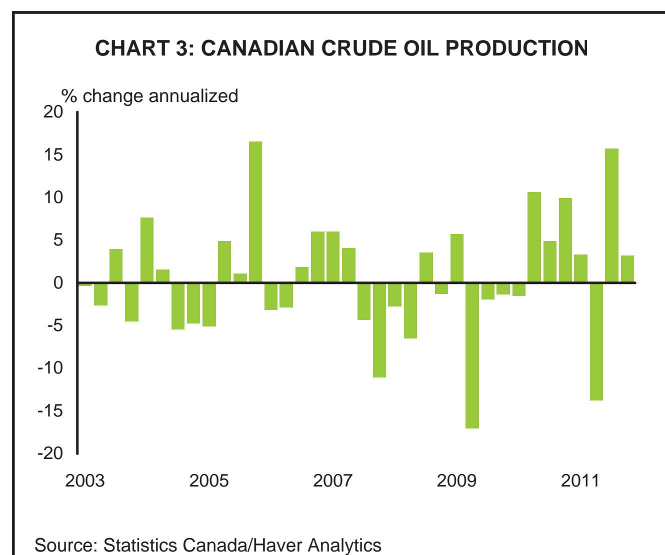
This sensitivity analysis suggests that the run-up in crude oil prices since the start of the fourth quarter of 2011 has actually exerted a drag on Canadian economic growth. Notably, WTI prices surged from about US$76 per barrel in October to around US$100 at year's end and have oscillated between US$95-105 per barrel since. This rise, which is the equivalent of about 30%, suggests that some of the boost to Canadian economic growth from the increase in prices earlier in the recovery has begun to fade so far this year.

These model results offer a simple rule of thumb, but in reality, the impacts on the Canadian economy from significant changes in oil prices is far more complicated, as it depends on the nature of the change as well as other factors. We now turn to four key influences and place them in the context of recent developments.

1) The nature of the shock matters

Crude oil price movements can be driven by several factors, including fundamental changes in supply and demand, speculation and geopolitical concerns. Canada's economy tends to receive the biggest boost during periods when crude oil prices are driven higher by rising global demand for crude, since the increasing demand tends to coincide with periods of strong income and economic activity globally as well as rising demand for overall Canadian exports. Indeed, the 2002-2007 run up in prices was driven in large part by strong U.S. and emerging market consumption of crude oil, heaping major benefits on the Canadian economy. On the flip side, there have been other instances through history, such as when the U.S. invaded Iraq in 2003, when prices shot up on fears and/or speculation that supply could tighten. Bank of Canada modeling has shown that a 10% increase in the price of oil driven by such non-fundamental factors shaves 0.8 percentage points off Canadian real GDP growth[3]. In this case, crude oil production and investment is less likely to respond to higher prices if oil producers view the increase as unsustainable. And when prices fall back, as the market begins to revert back to the underlying fundamentals, Canadian economic output tends to rebound.

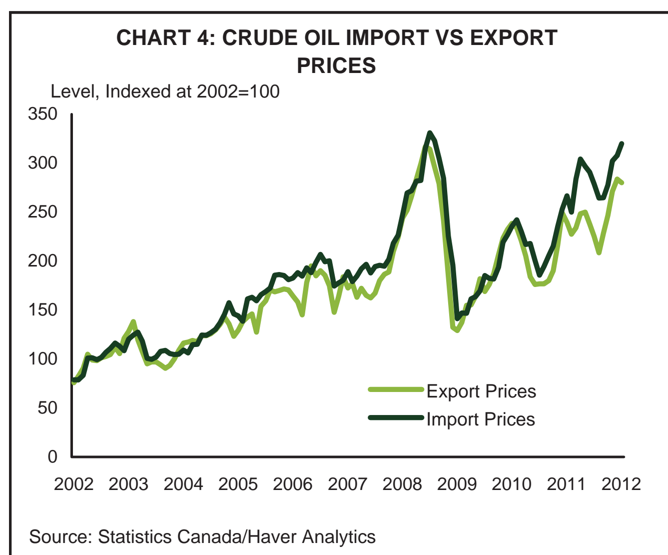
Typically, it is these non-fundamental factors that lead

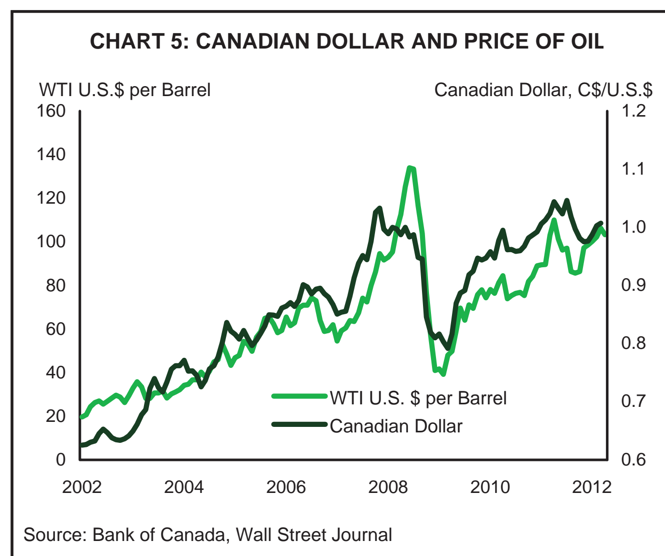


to sharp increases in prices over a short period of time. And indeed, the run-up in prices since the fall has largely reflected concerns that political tensions in Iran could choke off supply. Up until late April, we estimate that markets were pricing in a $20-$30 per barrel risk premium into the WTI, which has since fallen to about $10-$15. The risk premium on Brent is likely in the range of $15-$20. The timing of the speculative shock has been unfortunate. The price shock hit at a time when many major global economies remain frail. In particular, elevated prices have likely added a modest drag on the U.S. economy, Canada's largest trading partner, where every $10 increase in prices shaves real GDP by 0.2 percentage points.

2) Which price is rising?

Although West Texas Intermediate (WTI) is the most visible North American price, much of Canada's crude production is priced at the Edmonton Par Crude benchmark. Yet much of the oil that is in turn is refined and imported into Canada for household and business products uses a combination of WTI and Brent (i.e., European) prices. Typically, the Canadian crude price moves almost in lock-step with both benchmark prices. But, in part due to rising supply of North American oil and refining and shipping constraints, the Canadian benchmark has been trading well below its international counterparts. While narrowing in recent months, the spread between Edmonton Par and WTI was as high as US$20 earlier this year (see chart 4) – the widest on record. Indeed, the Canadian economy benefits less if the price of oil imported is above that of oil exports. Accordingly, Canada has been hit by a double-whammy whereby Canadian oil producers have not benefitted from the same upward pressure on prices as many global producers, whereas consumers in both Canada and the United States have suffered the full brunt of the negative impact.



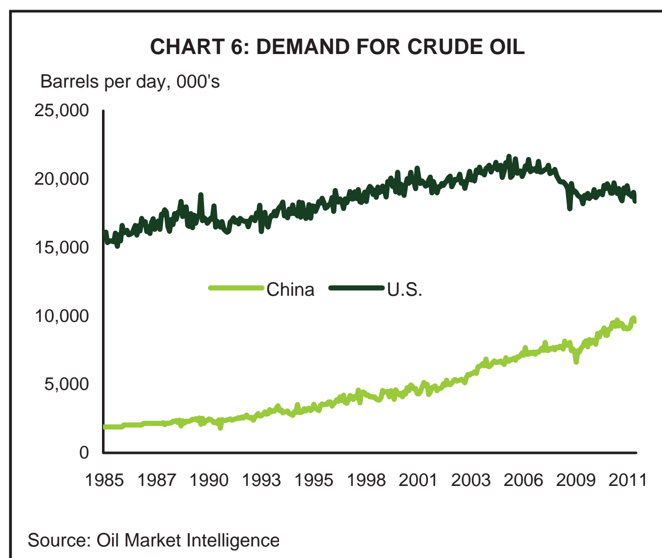


3) The direction of the Canadian dollar

Another factor that can lessen the impact on Canada's economy from changes in crude oil prices is the direction of the Canadian dollar. Given this country's position as a leading global exporter of crude, the Canadian dollar tends to rise and fall in lockstep with crude oil prices. This relationship has two major influences. First, with crude oil prices quoted in U.S.-dollar terms, an accompanying move in the currency tends to dampen the impacts of crude swings on Canadian incomes and activity. This is even true for the resource sector. Second, an appreciation in the Canadian dollar in tandem with higher oil prices, tend to squeeze profit margins for Canadian manufacturing exports and deal a blow to competitiveness. In any event, periods of significant oil price and exchange rate volatility tend to have a more pronounced effect on Canada's overall export sector compared to more gradual changes in the currency. With the Canadian dollar tracking oil prices higher over the past two years, WTI prices quoted in own-currency terms have experienced a more muted – but still healthy – increase. But there are limits to the currency and commodity price relationship. The appreciation in the loonie usually starts to slow as the price of oil reaches US$100 per barrel. Nonetheless, the currency has remained at levels that continue to put manufacturers' competitiveness under pressure.

4) North American supply and demand constraints

Export earnings and income are a function of both prices and volumes. Canada exports roughly 85% of its oil to the U.S. Mid-West, where demand has been flat in recent years (see chart 6). Given its U.S. focus, Canada has not benefitted directly from the rapid consumption growth in emerging markets, and notably China where consumption has increased 50% over the past 5 years. In addition, Canadian producers are having a difficult time getting their oil to markets. Multiple factors, such as an unusually warm winter and increased oil production in Dakota have created a backlog of oil in the pipelines Canadian oil producers use to get their oil down to the Mid West. As somewhat of an offset, Canadian oil producers have been investing in infrastructure to help cope with current transportation constraints, which in turn has helped support Canadian real GDP modestly.



Bottom Line

Canada's crude oil industry remains an extremely important driver of Canada's economy, and continues to pull well beyond its weight on terms of investment, employment and prosperity. Yet, the net impact to Canada's economic growth rate from the jump in crude oil prices over the past 6-7 months has been muted at best or has actually shifted into negative territory. In this vein, the recent easing in the price of crude oil to below US$100 per barrel spells good news as it offers relief to major consumers, including Canadian households.

Derek Burleton, Vice President &
Deputy Chief Economist
416-982-2514

Diana Petramala, Economist
416-982-6420

Endnotes:

1. Christiane Baumeister, Gert Peersman and Ine Van Robays. 2009. The Economic Consequences of Oil Shocks: Differences across Countries and Time. http://www.bankofcanada.ca/wp-content/uploads/2011/11/BPVR.pdf.
2. Selim Elekdag, René Lalonde, Douglas Laxton, Dirk Muir, and Paolo Pesenti. 2007 Oil Price Movements and the Global Economy: A Model-Based Assessment. Bank of Canada working paper.http://www.bankofcanada.ca/wp-content/uploads/2010/02/wp07-34.pdf.
3. Christiane Baumeister, Gert Peersman and Ine Van Robays. 2009

This report is provided by TD Economics. It is for information purposes only and may not be appropriate for other purposes. The report does not provide material information about the business and affairs of TD Bank Group and the members of TD Economics are not spokespersons for TD Bank Group with respect to its business and affairs. The information contained in this report has been drawn from sources believed to be reliable, but is not guaranteed to be accurate or complete. The report contains economic analysis and views, including about future economic and financial markets performance. These are based on certain assumptions and other factors, and are subject to inherent risks and uncertainties. The actual outcome may be materially different. The Toronto-Dominion Bank and its affiliates and related entities that comprise TD Bank Group are not liable for any errors or omissions in the information, analysis or views contained in this report, or for any loss or damage suffered.