Introducing BMO's Canadian Financial Conditions Index

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The Bank of Canada recently stopped publishing its Financial Conditions Index (FCI) after six years, claiming it no longer provides a reliable guide for policy makers "*given the inherent difficulty of quantifying the effects of changes in financial variables on the real economy*". The FCI also "*risks being misinterpreted*", as it "*misrepresents the Bank's approach to the ongoing assessment of financial conditions, which is based on a much wider set of information from a variety of sources*." Indeed, as shown in Chart 1, the Bank's FCI suggests the economy should be much stronger than it currently is, implying less need for further stimulus. While we don't wholly disagree with the Bank's view on the FCI's reliability as a policy guide (as no single measure can fully account for the complex lagged and feedback effects of changing conditions on the economy), we do believe the FCI can help improve economic forecasts (notably in the absence of a large-scale model, as used by the BoC) and hint at the possible direction of monetary policy. So, **we have developed our own FCI**. This article explains our methodology, assesses the ability of BMO's FCI to track turning points in the economy, and discusses implications for the economic outlook and monetary policy.

Methodology

The BMO FCI summarizes the impact of past changes in financial conditions on economic growth. It is comprised of nine indicators: lending conditions, credit spreads, short and long-term interest rates, house and equity prices, non-energy and energy commodity prices, and the exchange rate (see *Appendix Table 1 for more details on the data*).[1] The weights and the peak lagged impact of each indicator on GDP growth are determined using regression analysis of a reduced-form demand equation.[2] The impact of each variable on growth (*see Appendix charts A to E*) is summed to derive the FCI for each period (*Chart 2*). A positive FCI (above zero) suggests that conditions support growth, while a negative number implies a restraining effect. An increase means that conditions (and the economic outlook) are improving, while a decrease implies a deterioration in conditions and economic prospects.

All of the data used to calculate the FCI are available at least on a weekly basis, except lending conditions (quarterly) and house prices

Chart 1
Bank of Canada FCI and Economic Growth

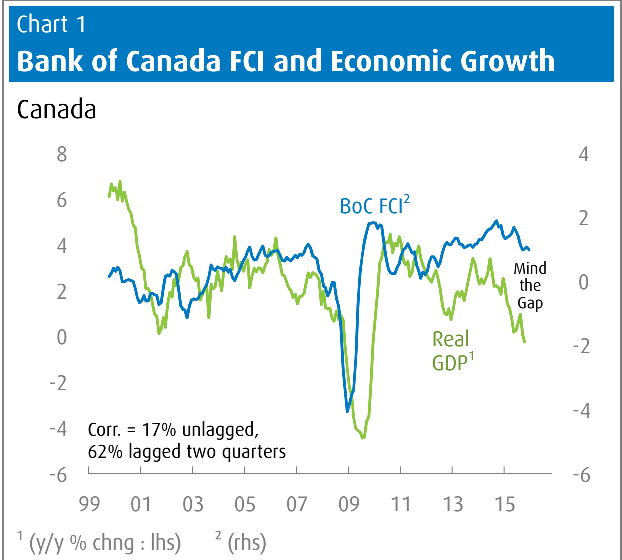
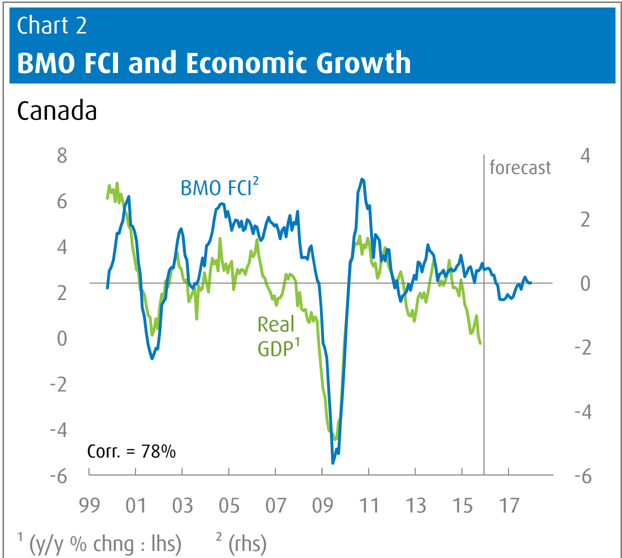


Chart 2
BMO FCI and Economic Growth



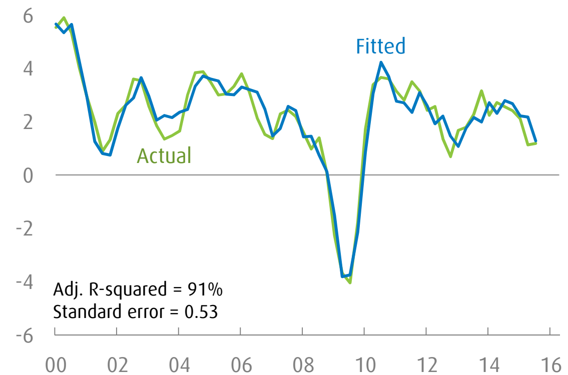
[1] Compared with the Bank of Canada's FCI, commodity prices are the only new financial indicator used in our measure. While not technically a financial indicator, resource prices have an important influence on the economy. In some cases, notably for credit spreads, house prices and equity prices, we used different data series or specifications of the data than the Bank.

[2] Using ordinary least squares, we regressed each explanatory variable, either in isolation or in combination with the other variables including U.S. domestic demand growth and a constant term, on year-over-year changes in quarterly real GDP over a sample that generally covered the period for our estimated FCI (1999Q4 to 2015Q3). The credit conditions indicator prevents us from compiling the FCI prior to 1999.

(monthly). We took liberties to compile a monthly series by assuming that lending conditions did not change during the quarter.

Economic Tracking Ability

Chart 3
GDP Equation: Fitted versus Actual Values



BMO's FCI tracks turning points in the economy fairly well, with negative levels often associated with economic weakness, while positive readings are consistent with economic strength. To better assess the FCI's ability to track the economy over the past 15 years, we employ it (along with U.S. final domestic demand and a constant term) in a single-equation model of GDP growth.[3] Chart 3 shows the fitted values plotted against actual growth. The equation explains 91% of the variation in growth in the sample period, with the FCI contributing 7% and the addition of commodity prices improving the fit slightly.[4] The standard error is 0.53 (meaning there is a 5% chance that the equation will either under-predict or over-predict GDP growth by at least 1 ppt). All the variables are significant at the 1% level or better. The coefficient estimates suggest that a 1 point increase in the FCI is associated with a 0.7% increase in GDP, while a 1% increase in U.S. domestic demand is associated with a 0.3% increase in GDP. The coefficient on the constant term (1.0) partly reflects the impact of potential economic growth.[5]

Since 1999, there have been two periods in which the FCI was highly statistically negative: the 2001 near-recession (when the FCI was about 2 standard deviations below the mean) and the 2009 recession (when the FCI was a massive 4 standard deviations below average). The economy buckled in 2009 because of sharp declines in oil and equity prices, lower house prices, and a significant worsening in the availability and cost of credit. It also didn't help that the currency was highly overvalued heading into the downturn. The recession wasn't caused by tight monetary policy but by a massive deterioration in nearly all financial conditions apart from short-term interest rates. The subsequent recovery in 2010 was led by a meaningful improvement in financial conditions, notably easier monetary policy, a temporary sharp depreciation in the dollar, and a strong rebound in resource, equity and house prices.

Economic Outlook Implications

Financial conditions have remained positive in the past year, supporting growth modestly. The positive effects of lower interest rates, higher house prices and a depreciating currency have more than offset the adverse effects of weaker resource and equity prices and higher credit spreads. However, the economy is weaker than the GDP equation predicts, possibly due to a greater response to plunging oil prices, or because indebted households are less responsive than usual to lower interest rates.

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[3] The equation is adjusted for first-order serial correlation.

[4] BMO's FCI follows the BoC's FCI fairly closely (with a correlation of 71%), albeit with a two quarter lag (excluding commodities, the correlation is 78%). The correlation with GDP growth over the past 15 years is 78%, compared with 62% for the Bank's measure (lagged two quarters, and 17% contemporaneously). In our GDP model, the FCI explains 91% of the variability in GDP growth (90% excluding commodities), while the Bank's measure (lagged two quarters) explains 86%.

[5] The Bank of Canada estimates that potential growth is currently modestly above 1.4%, according to the October Monetary Policy Report.

The GDP equation forecasts growth of 1½% in 2016 and 2% in 2017. This assumes steady U.S. domestic demand growth (2.8%) and no material change in financial conditions (apart from some slowing in house prices). The equation's forecast is broadly in line with BMO's current outlook after accounting for planned fiscal stimulus from Ottawa and some modest recovery in oil prices. However, the **net impact of financial conditions on growth will turn negative this year** because of the lagged effect of the latest downturn in oil and resource prices (*see Appendix Chart A*), with only partial offsets from the lower currency and interest rates. The increasingly positive effect from the past depreciation of the Canadian dollar (following its second worst year on record) will more fully support growth in 2017 (*Appendix Chart C*), when the net impact of financial conditions on the economy will turn positive again.[6]

Monetary Policy Implications

The Bank of Canada's patience—it has refrained from cutting rates since July 2015 despite recent weak data—might be rewarded if the economy responds as predicted by our GDP equation, with additional support from higher oil prices and fiscal policy. Nonetheless, the economy risks underperforming the Bank's expectations—the October MPR projected 2.5% growth in 2016—thereby delaying the closing of the output gap (currently projected in mid-2017). This implies a **downside risk to policy rates**, especially if resource prices fall further or the U.S. economy disappoints.

[6] In our FCI, the peak effect of the exchange rate on growth occurs after seven quarters, while that of commodity prices is felt after three quarters.

Appendix

Table 1

Indicators Used in BMO Financial Conditions Index

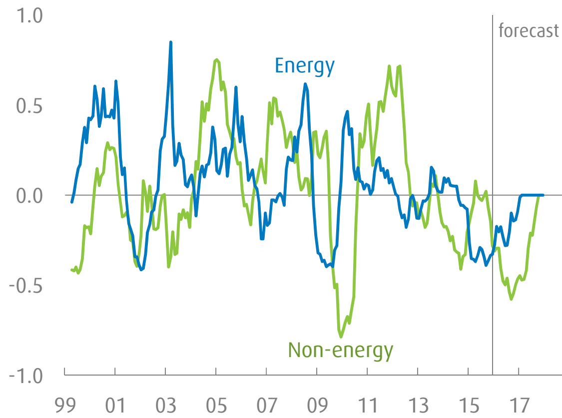
Category[1]	Data Series	Enters Equation	Estimated Coefficient	Significance Level (%)	Peak Lagged Impact (months)
Credit conditions	Balance of opinion for business lending practices of Canadian financial institutions (positive implies net tightening of loan conditions). Bank of Canada Senior Loan Officer Survey	level	-0.014	1	6
Credit spread	S&P 10-year US Industrials BB+ rate less 10-year US Treasury rate	level relative to mean (Oct 1999 – Sep 2015)	-0.393	1	6
Real short-term interest rate	Overnight lending rate target	y/y chng	-0.202	3	12
Real long-term interest rate	Canada 10-year rate	y/y chng	-0.264	5	15
Exchange rate	Bank of Canada C$ effective nominal exchange rate (increase means appreciation).	y/y % chng	-0.043	3	21
Real stock prices	TSX Composite index	y/y % chng	0.017	3	3
Real house prices	CREA MLS Home price index after Jan 2001; CREA average home price before Jan 2001	y/y % chng	0.092	1	6
Real non-energy commodity prices	Bank of Canada non-energy commodity price index	y/y % chng	0.027	1	9
Real energy commodity prices	Bank of Canada energy commodity price index	y/y % chng	0.007	5	1

[1] "Real" variables are derived by subtracting core CPI inflation from changes in the nominal variable.

Contribution to GDP Growth — Chart A

Commodity Prices

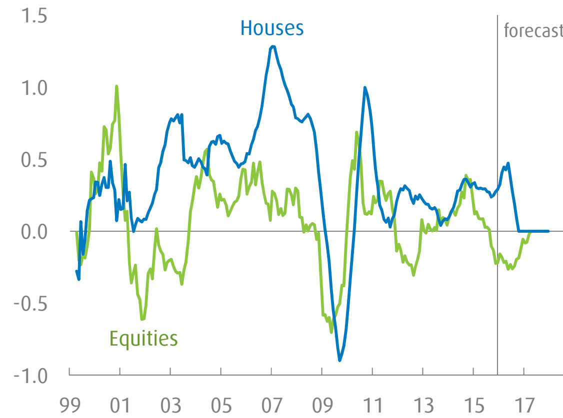
Canada (percent)



Contribution to GDP Growth — Chart B

Asset Prices

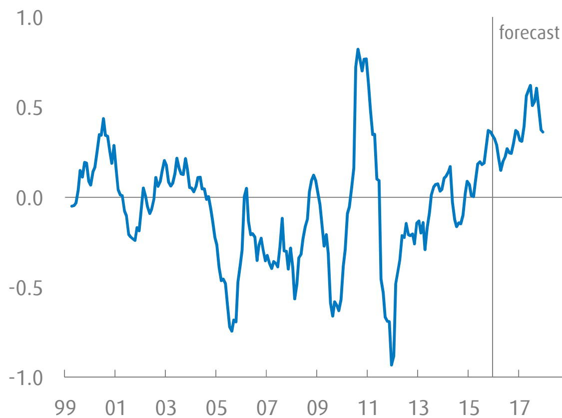
Canada (percent)



Contribution to GDP Growth — Chart C

Exchange Rate

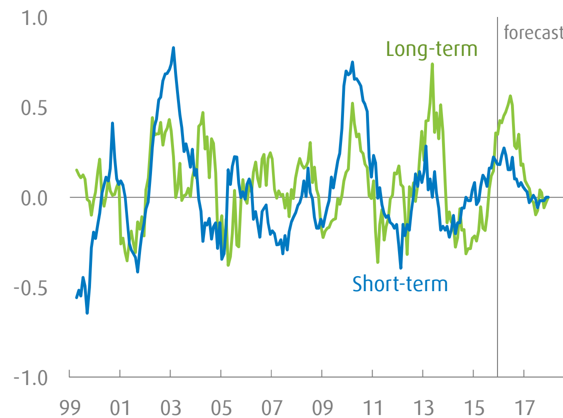
(percent)



Contribution to GDP Growth — Chart D

Interest Rates

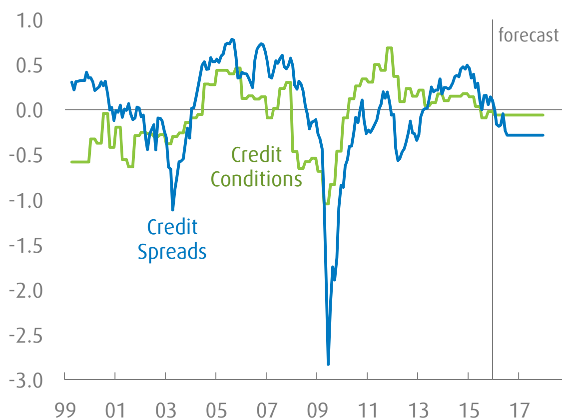
Canada (percent)



Contribution to GDP Growth — Chart E

Financing

(percent)



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