BANK OF CANADA
BANQUE DU CANADA

Bank of Canada
Monthly Research Update

November 2018

This monthly newsletter features the latest research publications by Bank of Canada economists. The report includes papers appearing in external publications and staff working papers published on the Bank of Canada's website.

PUBLISHED PAPERS

In-Press

Champagne, Julien & Sekkel, Rodrigo, "Changes in Monetary Regimes and the Identification of Monetary Policy Shocks: Narrative Evidence from Canada", Journal of Monetary Economics, Volume 99, November, p. 72-87

Pasricha, Gurnain Kaur & Falagiarda, Matteo & Bijsterbosch, Martin & Aizenman, Joshua, "Domestic and Multilateral Effects of Capital Controls in Emerging Markets", Journal of International Economics, Volume 115, November 2018, Pages 48-58

Van Oordt, Maarten & Zhou, Chen, "Systemic Risk of European Banks", In: P. Mizen, M. Rubio & P. Turner, editors, "Macroprudential Policy and Practice." Cambridge University Press. Macroeconomic Policy Making Series 5, 205-224

Forthcoming

Levine, Paul & Holden, Tom & Swarbrick, Jonathan, "Credit crunches from occasionally binding bank borrowing constraints", Journal of Money, Credit and Banking

Mullins, Jeff & St-Amant, Pierre, "The Productivity Slowdown in Canada: an ICT phenomenon?", International Productivity Monitor

Van Oordt, Maarten & Zhou, Chen, "Systemic Risk and Bank Business Models" Journal of Applied Econometrics

STAFF WORKING PAPERS

Charbonneau, Karyne B. & Landry, Anthony, "The Trade War in Numbers", Bank of Canada Staff Working Paper 2018-57

Kilian, Lutz & Zhou, Xiaoqing, "The Propagation of Regional Shocks in Housing Markets: Evidence from Oil Price Shocks in Canada", Bank of Canada Staff Working Paper 2018-56

Ahnert, Toni & Forbes, Kristin & Friedrich, Christian & Reinhardt, Dennis, "Macroprudential FX Regulations: Shifting the Snowbanks of FX Vulnerability?", Bank of Canada Staff Working Paper 2018-55

Van Oordt, Maarten, "Calibrating the Magnitude of the Countercyclical Capital Buffer Using Market-Based Stress Tests", Bank of Canada Staff Working Paper 2018-54

STAFF DISCUSSION PAPERS

Pichette, Lise & Bernier, Maria & Robitaille, Marie-Noëlle, "An Alternative Estimate of Canadian Potential Output: The Multivariate State-Space Framework", Bank of Canada Staff Discussion Paper 2018-14

ABSTRACTS

Changes in Monetary Regimes and the Identification of Monetary Policy Shocks: Narrative Evidence from Canada

Using narrative evidence with a novel database of real-time data and forecasts from the Bank of Canada's staff projections (1974–2015), we construct a new measure of monetary policy shocks and estimate the effects of monetary policy in Canada. We show it is crucial to account for the break in the conduct of monetary policy caused by the announcement of inflation targeting in 1991. A 100-basis-point increase in our new shock series leads to a 1.0 percent peak decrease in real GDP and a 0.5 percent fall in the price level, while not accounting for the break leads to a persistent decrease in GDP and a price puzzle. Albeit the change in monetary regime, the effects of monetary policy have not changed much before and after IT.

Domestic and Multilateral Effects of Capital Controls in Emerging Markets

Using a novel, high frequency dataset on capital control actions in 16 emerging market economies (EMEs) from 2001 to 2012, we provide new evidence on the domestic and multilateral effects of capital controls. Increases in capital account openness reduce monetary policy autonomy and increase exchange rate stability, confirming the constraints of the monetary policy trilemma. Both gross in- and outflows rise, while the effect on net capital flows is ambiguous. Tighter capital inflow restrictions generated significant spillovers, especially in the post-2008 environment of abundant global liquidity. We also find evidence of a domestic policy response to foreign capital control changes in countries that are affected by these spillovers.

Systemic Risk of European Banks

This chapter assesses whether market-based measures of systemic risk and regulatory indicators provide similar rankings of the systemic importance of large European banks. We find evidence that regulatory indicators of systemic importance are positively related to systemic risk. In particular, banks with higher scores on regulatory indicators tend to have a stronger link to the system in the event of financial stress, rather than having a higher level of bank risk.

Credit crunches from occasionally binding bank borrowing constraints

We present a model in which banks and other financial intermediaries face both occasionally binding borrowing constraints, and costs of equity issuance. Near the steady state, these intermediaries can raise equity finance at no cost through retained earnings. However, even moderately large shocks cause their borrowing constraints to bind, leading to contractions in credit offered to firms, and requiring the intermediaries to raise further funds by paying the cost to issue equity. This leads to the occasional sharp increases in interest spreads and the counter-cyclical, positively skewed equity issuance that are characteristic of the credit crunches observed in the data.

The Productivity Slowdown in Canada: an ICT phenomenon?

We ask whether a weaker contribution of information and communication technologies (ICT) to productivity growth could account for the productivity slowdown observed in Canada since the early 2000s. To answer this question, we consider several methods capturing channels through which ICT could affect aggregate productivity growth. This includes a model we propose to simultaneously capture production, capital deepening and price effects. Our results indicate that ICT continue to contribute to productivity growth, but that this contribution has declined and accounts for part of the productivity slowdown. However, the slowdown in productivity and in the contribution of ICT do not seem to have the same timing. While productivity slowed in the early 2000s, ICT contribution does not appear to have fallen until around the Great Recession. This prompts the conclusion that while ICT had little to no role in the initial productivity slowdown, it has been a major determinant of the subdued productivity growth since around the recession.

Systemic Risk and Bank Business Models

In this paper, we decompose banks' systemic risk into two dimensions: the risk of a bank (“bank tail risk”) and the link of the bank to the system in financial distress (“systemic linkage”). Based on extreme value theory, we estimate a systemic risk measure that can be decomposed into two subcomponents reflecting these dimensions. Empirically, we assess the relationships of bank business models to the two dimensions of systemic risk. The observed differences in these relationships partly explain why micro- and macroprudential perspectives sometimes have different implications for banking regulation.

The Trade War in Numbers

We build upon new developments in the international trade literature to isolate and quantify the long-run economic impacts of tariff changes on the United States and the global economy. In particular, we apply the most recent data and trade elasticity estimates to the Ricardian model of Caliendo and Parro (2015) to quantify the long-run impacts of the recently applied and proposed tariff changes, including the U.S. tariffs on steel and aluminum imports and the rounds of additional tariffs between the United States and China. To fit the reality of the current trade policy shift, our analysis also allows for quotas and endogenizes trade balances. Overall, our results suggest that the newly imposed and proposed tariff schemes imply considerable changes in trade flows and sectoral output reallocations, but modest impacts on long-run aggregate prices and output levels.

The Propagation of Regional Shocks in Housing Markets: Evidence from Oil Price Shocks in Canada

Shocks to the demand for housing that originate in one region may seem important only for that regional housing market. We provide evidence that such shocks can also affect housing markets in other regions. Our analysis focuses on the response of Canadian housing markets to oil price shocks. Oil price shocks constitute an important source of exogenous regional variation in income in Canada because oil production is highly geographically concentrated. We document that, at the national level, real oil price shocks account for 11% of the variability in real house price growth over time. At the regional level, we find that unexpected increases in the real price of oil raise housing demand and real house prices not only in oil-producing regions, but also in other regions. We develop a theoretical model of the propagation of real oil price shocks across regions that helps understand this finding. The model differentiates between oil-

producing and non-oil-producing regions and incorporates multiple sectors, trade between provinces, government redistribution, and consumer spending on fuel. We empirically confirm the model prediction that oil price shocks are propagated to housing markets in non-oil-producing regions by the government redistribution of oil revenue and by increased interprovincial trade.

Macroprudential FX Regulations: Shifting the Snowbanks of FX Vulnerability?

Can macroprudential foreign exchange (FX) regulations on banks reduce the financial and macroeconomic vulnerabilities created by borrowing in foreign currency? To evaluate the effectiveness and unintended consequences of macroprudential FX regulations, we develop a parsimonious model of bank and market lending in domestic and foreign currency and derive four predictions. We confirm these predictions using a rich data set of macroprudential FX regulations. These empirical tests show that FX regulations (1) are effective in terms of reducing borrowing in foreign currency by banks; (2) have the unintended consequence of simultaneously causing firms to increase FX debt issuance; (3) reduce the sensitivity of banks to exchange rate movements; but (4) are less effective at reducing the sensitivity of corporates and the broader financial market to exchange rate movements. As a result, FX regulations on banks appear to be successful in mitigating the vulnerability of banks to exchange rate movements and the global financial cycle, but partially shift the snowbank of FX vulnerability to other sectors.

Calibrating the Magnitude of the Countercyclical Capital Buffer Using Market-Based Stress Tests

This paper proposes a novel methodology to calibrate the magnitude of the cap on the countercyclical capital buffer (CCyB) using market-based stress tests. The macroprudential authority in our paper aims to contain the possibility of a breach of a minimum capital ratio in the event of a severe system-wide shock within a certain permissible failure probability. To meet its objective during periods of challenging macro-financial conditions, the macroprudential authority requires banks to build up the CCyB during credit booms. We show how market-based stress tests can be used to estimate the necessary magnitude of the CCyB. We apply the methodology to major banks in six advanced economies. Our estimates suggest a magnitude of the cap on the CCyB in a range from 1.4 to 1.7 per cent of total assets,

depending on the ability of the macro-prudential authority to forecast macrofinancial conditions.

An Alternative Estimate of Canadian Potential Output: The Multivariate State-Space Framework

In this paper, we extend the state-space methodology proposed by Blagrave et al. (2015) and decompose Canadian potential output into trend labour productivity and trend labour input. As in Blagrave et al. (2015), we include output growth and inflation expectations from consensus forecasts to help refine our estimates. Our alternative model, which we call the multivariate state-space framework (MSSF), adds to the Bank's existing set of tools for estimating potential output and the output gap in Canada. We find that while the MSSF shares similar dynamics to the main approaches used by the Bank, it also indicates that the economy experienced greater excess supply in both the 1990 and 2008 recessions than the Bank's other tools would suggest. Finally, the MSSF estimates that the Canadian economy has been operating close to capacity since the end of 2017.

UPCOMING EVENTS

Todd Keister (Rutgers University), 3 December 2018
Organizer: Jonathan Chiu (FBD)

Decio Coviello (HEC Montreal), 7 December 2018
Organizer: Youngmin Park (CEA)

Fernanda Nechio (Federal Reserve of San Francisco), 14 December 2018
Organizer: Anthony Landry (CEA)

Simon Gilchrist (NYU), 5 April 2019
Organizer: Anthony Landry (CEA)

Alexander Bick (Arizona State University), 1 May 2019
Organizer: Natalia Kyui (CEA)

Michael Kiley (Federal Reserve Board), 10 May 2019
Organizer: Laurent Martin (CEA)

David Berger (Northwestern), 13 September 2019
Organizer: Anthony Landry (CEA)

Catherine Tucker (MIT), 19 November 2019
Organizer: Shota Ichihashi (CEA)