BANK OF CANADA
BANQUE DU CANADA

Bank of Canada Monthly Research Update

September 2014

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

PUBLISHED PAPERS

In Press

Allen, Jason, Robert Clark and Jean-François Houde, "Price Dispersion in Mortgage Markets", Journal of Industrial Economics, 62(3), p. 377-416

D'Agostino, Antonello and Michael Ehrmann, "The Pricing of G7 Sovereign Bond Spreads – The Times, They are A-Changin", Journal of Banking and Finance, 47, p. 155-176

Forthcoming

Coibion, Olivier, Yuriy Gorodnichenko and Gee Hee Hong, "The Cyclicality of Sales, Regular and Effective Prices: Business Cycle and Policy Implications", American Economic Review

WORKING PAPERS

Alquist, Ron, Gregory Bauer and Antonio Diez de los Rios, "What Does the Convenience Yield Curve Tell Us about the Crude Oil Market?", Bank of Canada Working Paper 2014-42

Barnett, William A., Marcelle Chauvet and Danilo Leiva-Leon, "Real-Time Nowcasting of Nominal GDP Under Structural Breaks", Bank of Canada Working Paper 2014-39

Christensen, Ian and Fuchun Li, "Predicting Financial Stress Events: A Signal Extraction Approach", Bank of Canada Working Paper 2014-37

Dahlhaus, Tatjana, Kristina Hess and Abeer Reza, "International Transmission Channels of U.S. Quantitative Easing: Evidence from Canada", Bank of Canada Working Paper 2014-43

Huynh, Kim, Phillipp Schmidt-Dengler and Helmut Stix, "The Role of Card Acceptance in the Transaction Demand for Money", Bank of Canada Working Paper 2014-44

Kartashova, Katya, "Improving Public Equity Markets? No Pain, No Gain", Bank of Canada Working Paper 2014-41

Leiva-Leon, Danilo, "A New Approach to Infer Changes in the Synchronization of Business Cycle Phases", Bank of Canada Working Paper 2014-38

Mendes, Rhys R., "The Neutral Rate of Interest in Canada", Bank of Canada Discussion Paper 2014-5

Sekkel, Rodrigo, "Balance Sheets of Financial Intermediaries: Do They Forecast Economic Activity?", Bank of Canada Working Paper 2014-40

ABSTRACTS

Price Dispersion in Mortgage Markets

Using transaction-level data on Canadian mortgage contracts, we document an increase in the average discount negotiated off the posted price and in rate dispersion. Our aim is to identify the beneficiaries of discounting and to test whether dispersion is caused by price discrimination. The standard explanation for dispersion in credit markets is risk-based pricing. Our contracts are guaranteed by government-backed insurance, so risk cannot be the main factor. We find that lenders set prices that reflect consumer bargaining leverage, not just costs. The presence of dispersion implies a lack of competition, but our results show this to be consumer specific.

The Pricing of G7 Sovereign Bond Spreads – The Times, They are A-Changin

Against the background of the current debate about fiscal sustainability in several advanced economies, this paper estimates determinants of G7 sovereign bond spreads, using high-frequency proxies for market expectations about macroeconomic fundamentals and allowing for time-varying parameters. The paper finds substantial asymmetry in the importance of country fundamentals and considerable time variations in the pricing of risks. There has been a reduced pricing of several risk factors in the years preceding the financial crisis, and either an over-pricing of risk or the pricing of a re-denomination risk of euro area bonds during the European sovereign debt crisis, a pattern that does not apply to the non-euro area G7 bonds.

The Cyclicality of Sales, Regular and Effective Prices: Business Cycle and Policy Implications

We study the cyclical properties of sales, regular price changes and average prices paid by consumers (“effective” prices) using data on prices and quantities sold for numerous retailers across many U.S. metropolitan areas. Inflation in the effective prices paid by consumers declines significantly with higher unemployment while little change occurs in the inflation rate of prices posted by retailers. This difference reflects the reallocation of household expenditures across retailers, a feature of the data which we document and quantify, rather than sales. We propose a simple model with household store-switching and assess its implications for business cycles and policymakers.

What Does the Convenience Yield Curve Tell Us about the Crude Oil Market?

Using the prices of crude oil futures contracts, we construct the term structure of crude oil convenience yields out to one-year maturity. The crude oil convenience yield can be interpreted as the interest rate, denominated in barrels of oil, for borrowing a single barrel of oil, and it measures the value of storing crude oil over the borrowing period. We show that the convenience yield curve is well explained by a level and a slope factor. Consistent with the theory of storage, convenience yields have predictive power over future crude oil inventories, production, global real economic activity and the price of oil.

Real-Time Nowcasting of Nominal GDP Under Structural Breaks

This paper provides a framework for the early assessment of current U.S. nominal GDP growth, which has been considered a potential new monetary policy target. The nowcasts are computed using the exact amount of information that policy-makers have available at the time predictions are made. However, real-time information arrives at different frequencies and asynchronously, which poses challenges of mixed frequencies, missing data and ragged edges. This paper proposes a multivariate state-space model that not only takes into account asynchronous information inflow, but also allows for potential parameter instability. We use small-scale confirmatory factor analysis in which the candidate variables are selected based on their ability to forecast nominal GDP. The model is fully estimated in one step using a non-linear Kalman filter, which is applied to obtain optimal inferences simultaneously on both the dynamic factor and parameters. In contrast to principal component analysis, the proposed factor model captures the co-movement rather than the variance underlying the variables. We compare the predictive ability of the model with other univariate and multivariate specifications. The results indicate that the proposed model containing information on real economic activity, inflation, interest rates and Divisia monetary aggregates produces the most accurate real-time nowcasts of nominal GDP growth.

Predicting Financial Stress Events: A Signal Extraction Approach

The objective of this paper is to propose an early warning system that can predict the likelihood of the occurrence of financial stress events within a given period of time. To achieve this goal, the signal extraction approach proposed by Kaminsky, Lizondo and Reinhart (1998) is used to monitor the evolution of a number of economic indicators that tend to exhibit an unusual behaviour in the periods preceding a financial stress event. Based on the individual indicators, we propose three different composite indicators, the summed composite indicator, the extreme composite indicator and the weighted composite indicator. In-sample forecasting results indicate that the three composite indicators are useful tools for predicting financial stress events. The out-of-sample forecasting results suggest that for most countries, including Canada, the weighted composite indicator performs better than the two others across all criteria considered.

International Transmission Channels of U.S. Quantitative Easing: Evidence from Canada

The U.S. Federal Reserve responded to the great recession by reducing policy rates to the effective lower bound. In order to provide further monetary stimulus, they subsequently conducted large-scale asset purchases, quadrupling their balance sheet in the process. We assess the international spillover effects of this quantitative easing program on the Canadian economy in a factor-augmented vector autoregression (FAVAR) framework, by considering a counterfactual scenario in which the Federal Reserve's long-term asset holdings do not rise in response to the recession. We find that U.S. quantitative easing boosted Canadian output, mainly through the financial channel.

The Role of Card Acceptance in the Transaction Demand for Money

The use of payment cards, either debit or credit, is becoming more and more widespread in developed economies. Nevertheless, the use of cash remains significant. We hypothesize that the lack of card acceptance at the point of sale is a key reason why cash continues to play an important role. We formulate a simple inventory model that predicts that the level of cash demand falls with an increase in card acceptance. We use detailed payment diary data from Austrian and Canadian consumers to test this model while accounting for the endogeneity of acceptance. Our results confirm that card acceptance exerts a substantial impact on the demand for cash. The estimate of the consumption elasticity (0.23 and 0.11 for Austria and Canada, respectively) is smaller than that predicted by the classic Baumol-Tobin inventory model (0.5). We conduct counterfactual experiments and quantify the effect of increased card acceptance on the demand for cash. Acceptance reduces the level of cash demand as well as its consumption elasticity.

Improving Public Equity Markets? No Pain, No Gain

This paper quantifies the effects of improving public equity markets on macroeconomic aggregates and welfare. I use an open-economy extension of Angeletos (2007), where entrepreneurs face idiosyncratic productivity risk in privately held firms. They can diversify by investing in publicly traded firms, but their operation is costly. These costs can vary across different economies. To quantify the effect of the differences and impose discipline, I parameterize the model using Ecuadorian and Chilean firm-level and aggregate data. Lower equity costs result in improvement of economic aggregates, but have differential welfare effects. Entrepreneurs suffer a loss, while workers gain.

A New Approach to Infer Changes in the Synchronization of Business Cycle Phases

This paper proposes a Markov-switching framework to endogenously identify the following: (1) regimes where economies synchronously enter recessionary and expansionary phases; and (2) regimes where economies are unsynchronized, essentially following independent business cycles. The reliability of the framework to track changes in synchronization is corroborated with Monte Carlo experiments. An application to the case of U.S. states reports substantial changes over time in the cyclical affiliation patterns of states. Moreover, a network analysis discloses a change in the propagation pattern of aggregate contractionary shocks across states, suggesting that regional economies in the United States have become more interdependent since the early 1990s.

The Neutral Rate of Interest in Canada

A measure of the neutral policy interest rate can be used to gauge the stance of monetary policy. We define the neutral rate as the real policy rate consistent with output at its potential level and inflation equal to target after the effects of all cyclical shocks have dissipated. This is a medium- to longer-run concept of the neutral rate. Under this definition, the neutral rate in Canada is determined by the longer-run forces that influence savings and investment in both the Canadian and global economies. Structural forces have likely reduced the neutral rate by more than a percentage point since the mid-2000s. The Bank's estimates of the real neutral policy rate currently stand in the 1 to 2 per cent range, or 3 to 4 per cent in nominal terms. The current gap between the policy rate and the neutral rate reflects policy stimulus in response to significant excess supply and in the face of continuing headwinds. As long as these headwinds persist, a policy rate below neutral will be required to maintain inflation sustainably at target.

Balance Sheets of Financial Intermediaries: Do They Forecast Economic Activity?

This paper conducts a real-time, out-of-sample analysis of the forecasting power of various aggregate financial intermediaries' balance sheets to a wide range of economic activity measures in the United States. I find evidence that the balance sheets of leveraged financial institutions do have out-of-sample predictive power for future economic activity, and this predictability arises mainly through the housing sector. Nevertheless, I show that these variables have very little predictive power during periods of economic expansions and that predictability arises mainly during the financial crisis period.