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Bank of Canada Monthly Research Update

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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

Guérin, Pierre, and Martin Bijsterbosch, "Characterizing very high uncertainty episodes", Economics Letters 121 (2013) 239–243 (November 2013)

Halaburda, Hanna, and Yaron Yehezkel, "Platform Competition under Asymmetric Information", American Economic Journal: Microeconomics, 5(3): 22-68.

Slive, Joshua, Jonathan Witmer and Elizabeth Woodman, "Liquidity and central clearing: evidence from the credit default swap market", Journal of Financial Market Infrastructures 2(1) 3-35

Forthcoming

Christensen, Ian, Paul Corrigan, Caterina Mendicino and Shin-Ichi Nishiyama, "Consumption, Housing Collateral, and the Canadian Business Cycle", Canadian Journal of Economics

Dubrovinsky, Mati, and Ralph A. Winter, "Organizational Form and the Quality of Output", Canadian Journal of Economics

Guérin, Pierre, Laurent Maurin and Matthias Mohr, "Trend-cycle decomposition of output and euro area inflation forecasts: a real-time approach based on model combination", Macroeconomic Dynamics

Huyn, Kim, Anton Ho and David Jacho-Chavez, "crs: A Package for Nonparametric Splines Estimation in R", Journal of Applied Econometrics

Leiva-Leon, Danilo, "Real vs. Nominal Cycles: A Multistate Markov-Switching Bi-Factor Approach", Studies in Nonlinear Dynamics and Econometrics

WORKING PAPERS

Anand, Kartik and Prasanna Gai, "The Safety of Government Debt", Bank of Canada Working Paper 2013-34

Chang, Bo Young, and Bruno Feunou, "Measuring Uncertainty in Monetary Policy Using Implied Volatility and Realized Volatility", Bank of Canada Working Paper 2013-37

Guérin, Pierre, E. Ghysels and M. Marcellino, "Regime Switches in the Risk-Return Trade-off", CEPR Discussion Paper No. 9698 (October 2013)

Huyn, Kim, Teodora Paligorova and Robert Petrunia, "Public/Private Transitions and Firm Financing", Bank of Canada Working Paper 2013-36

Morel, Louis, Mikael Khan and Patrick Sabourin, "The Common Component of CPI: An Alternative Measure of Underlying Inflation for Canada", Bank of Canada Working Paper 2013-35

ABSTRACTS

Characterizing very high uncertainty episodes

This paper uses a two-step approach to characterize the evolution of US macroeconomic and financial variables during episodes of very high uncertainty. First, we identify episodes of very high uncertainty using a regime-switching model. Second, we assess the behavior of macroeconomic and financial variables during these episodes of very high uncertainty. This methodology is analogous to the approach followed by Baele et al. (2012), who study episodes of flights to safety in financial markets. We find that very high uncertainty episodes are associated with a weaker growth performance and sharp declines in stock prices.

Platform Competition under Asymmetric Information

We consider platform competition in a two-sided market, where the two sides (buyers and sellers) have ex-ante uncertainty and ex-post asymmetric information concerning the value of a new technology. We fi nd that platform competition may lead to a market failure: competition may result in a lower level of trade and lower welfare than a monopoly, if the diff erence in the degree of asymmetric information between the two side is below a certain threshold. Multi-homing solves the market failure resulting from asymmetric information. However, if platforms can impose exclusive dealing, then they will do so, which results in market ineficiency.

Liquidity and central clearing: evidence from the credit default swap market

An international initiative to increase the use of central clearing for over-the counter (OTC) derivatives emerged as one of the reactions to the 2008 financial crisis. The move to central clearing is a fundamental change in the structure of the market. Central clearing will help control counterparty credit risk, but it also has potential implications for market liquidity. We analyze the relationship between liquidity and central clearing using information on credit default swap clearing at ICE Trust and ICE Clear Europe.We find that the central counterparty chooses the most liquid contracts for central clearing, consistent with liquidity characteristics being important in determining the safety and efficiency of clearing.We further find that the introduction of central clearing is associated with a slight increase in the liquidity of a contract. This is consistent with two countervailing effects. On the one hand, central clearing will likely increase collateral requirements relative to the prereform bilaterally cleared market, thereby increasing clearing costs and possibly reducing the liquidity of the market. On the other hand, improved management of counterparty credit risk, increased transparency and operational efficiencies at central counterparties could bring more competition into OTC derivative markets and serve to increase liquidity.

Consumption, Housing Collateral, and the Canadian Business Cycle

Using Bayesian methods, we estimate a small open economy model in which consumers face limits to credit determined by the value of their housing stock. The purpose of this paper is to quantify the role of collateralized household debt in the Canadian business cycle. Our findings show that the presence of borrowing constraints improves the performance of the model in terms of overall goodness of fit. In particular, the presence of housing collateral generates a positive correlation between consumption and house prices. Finally we find that housing collateral induced spillovers account for a large share of consumption growth during the housing market boom-bust cycle of the late 1980s.

Organizational Form and the Quality of Output

This paper re-examines the relationship between the organizational form that a firm chooses, not-for-profit versus for-profit, and the quality of output that it provides. The Arrow-Hansmann theory of hidden action on the part of providers predicts higher quality for not-for-profit suppliers. This prediction has a puzzling lack of support in the empirical literature. We propose a theory that resolves the empirical puzzle and generates additional testable implications. The theory starts with the traditional assumptions of hidden action and supplier altruism. It then incorporates two additional features of real-world markets: hidden information on supplier ability to provide high quality and a variation across buyers in the degree of informational asymmetry. The central prediction of the theory is that quality has a higher variance across for-profits than across not-for-profits. Preliminary evidence from the U.S. market for hospital care is consistent with the prediction.

Trend-cycle decomposition of output and euro area inflation forecasts: a real-time approach based on model combination

This paper estimates univariate and multivariate trend-cycle decomposition models of GDP and considers the novel possibility of regime switches in the growth of potential output. We compute both ex post and real-time estimates of the output gap to check the stability of our estimates to GDP data revisions. We find some evidence of regime changes in the growth of potential output during the recessions experienced by the euro area. We also run a forecasting experiment to evaluate the predictive power of the output gap for inflation. The benchmark autoregressive model tends to obtain the best forecasts for one-quarter-ahead forecasts, but the output gap measures help to forecast inflation for longer horizons.

crs: A Package for Nonparametric Splines Estimation in R

crs is a library for R written by Jeffrey S. Racine (Maintainer) and Zhenghua Nie. This add-on package provides a collection of functions for spline-based nonparametric estimation of regression functions with both continuous and categorical regressors. Currently, the crs package integrates data-driven methods for selecting the spline degree, the number of knots, and the necessary bandwidths for nonparametric conditional mean, IV, and quantile regression. A function for multivariate density spline estimation with mixed data is also currently in the works. As a bonus, the authors have also provided the rst simple R interface to the NOMAD (`nonsmooth mesh adaptive direct search') optimization solver|see Abramson et al. (2011) and Le Digabel (2011)|which can be applied to solve other mixed integer optimization problems that future users might nd useful in other settings. Although the crs package shares some of the same functionalities as its kernel-based counterpart, the np package (see Harrison, 2008) by the same author, it currently lacks some of the features the np package provides, such as hypothesis testing and semiparametric estimation. However, what it lacks in breadth, crs makes up in speed. A Monte Carlo experiment in this review uncovers sizeable speed gains compared to its np counterpart, with a marginal loss in terms of goodness of t. Therefore, the package will be extremely useful for applied econometricians interested in employing nonparametric techniques using large amounts of data with a small number of discrete covariates.

Real vs. Nominal Cycles: A Multistate Markov-Switching Bi-Factor Approach

This paper develops a probabilistic model based on comovements and nonlinearities useful to assess the type of shock affecting each phase of the business cycle. By providing simultaneous inferences on the phases of real activity and inflation cycles, contractionary episodes are dated and categorized into demand, supply and mix recessions based on the time-varying shock's contributions. Also, the impact of shocks originated in the housing market over the business cycle is assessed, finding that recessions are usually accompanied by housing deflationary pressures, while expansions are mainly influenced by housing demand shocks, with only a notorious exception occurred during the period surrounding the "great recession" which is affected by expansionary housing supply shocks.

The Safety of Government Debt

We examine the safety of government bonds in the presence of Knightian uncertainty amongst financial market participants. In our model, the information insensitivity of government bonds is driven by strategic complementarities across counterparties and the structure of trading relationships. We identify the frontier between safe and unsafe assets and show how the growth rate of the economy and its fiscal capacity interact with the degree of ambiguity amongst investors to determine the safe-asset equilibrium. We use our framework to illustrate a fiscal variation on the Triffin dilemma, in which the role of a country as sole provider of international liquidity is questioned as its size in the world economy - and hence its fiscal capacity - diminishes.

Measuring Uncertainty in Monetary Policy Using Implied Volatility and Realized Volatility

We measure uncertainty surrounding the central bank's future policy rates using implied volatility computed from interest rate option prices and realized volatility computed from intraday prices of interest rate futures. Both volatility measures show that uncertainty decreased following the most important policy actions taken by the Bank of Canada as a response to the financial crisis of 2007-08, such as the conditional commitment of 2009-10, the unscheduled cut in the target rate coordinated with other major central banks, and the introduction of term purchase and resale agreements. We also find that, on average, uncertainty decreases following the Bank of Canada's policy rate announcements. Furthermore, our measures of policy rate uncertainty improve the estimation of policy rate expectations from overnight index swap (OIS) rates by predicting the risk premium in the OIS market.

Regime Switches in the Risk-Return Trade-off

This paper deals with the estimation of the risk-return trade-off. We use a MIDAS model for the conditional variance and allow for possible switches in the risk-return relation through a Markov-switching specification. We find strong evidence for regime changes in the risk-return relation. This finding is robust to a large range of specifications. In the first regime characterized by low ex-post returns and high volatility, the risk-return relation is reversed, whereas the intuitive positive risk-return trade-off holds in the second regime. The first regime is interpreted as a "flight-to-quality" regime.

Public/Private Transitions and Firm Financing

A large body of empirical literature investigates differences in financing structures across firms. Private firms' financing receives little attention due to the lack of data. Using administrative confidential data on the universe of Canadian corporate firms, we compare financing relationships for private and public firms. Leverage ratios are lower for public firms and the difference is almost entirely driven by private firms' stronger reliance on short-term debt. We also find that private and public firms' debt financing responds differently to industry shocks. In periods of positive industry shocks, private firms rely more on long-term debt than public firms, while the former use more short-term debt when industry conditions deteriorate.

The Common Component of CPI: An Alternative Measure of Underlying Inflation for Canada

In this paper, the authors propose a measure of underlying inflation for Canada obtained from estimating a monthly factor model on individual components of the CPI. This measure, labelled the common component of CPI, has intuitive appeal and a number of interesting features. In particular, it is not affected by sector-specific price movements that can distort the signal in many other measures of underlying inflation, and appears to capture price movements that are indicative of aggregate demand fluctuations in the Canadian economy. This indicator may serve as a useful complement to existing measures of underlying inflation monitored by the Bank of Canada.