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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 staff working papers published on the Bank of Canada's website.

PUBLISHED PAPERS

In-Press

Devereux, Michael, Wei Dong & Ben Tomlin, "Importers and Exporters in Exchange Rate Pass-Through and Currency Invoicing", Journal of International Economics", Volume 105, 2017, Page 187-204

Xu, Shaofeng, "Volatility Risk and Economic Welfare", Journal of Economic Dynamics and Control, Volume 80, July 2017, Pages 17–33

Forthcoming

Hajzler, Christopher & Akhtaruzzaman, M. & Berg, Nathan, "Expropriation risk and FDI in developing countries: Does return of capital dominate return on capital?", European Journal of Political Economy

Hajzler, Christopher & Akhtaruzzaman, M. & Dorian, Owen P., "Does institutional quality resolve the Lucas Paradox?", Applied Economics

Kartashova, Katya & Tomlin, Ben, "House Prices, Consumption and the Role of Non-Mortgage Debt", Journal of Banking and Finance

Thibaut, Duprey & Benjamin, Klaus & Tuomas, Peltonen, "Dating Systemic Financial Stress Episodes in the EU Countries", Journal of Financial Stability

STAFF WORKING PAPERS

Ahnert, Toni & Anand, Kartik & Gai, Prasanna &Chapman, James, "Asset encumbrance, bank funding and fragility", European Systemic Risk Board

Lepetyuk, Vadym & Maliar, Lilia & Maliar, Serguei, "Should Central Banks Worry About Nonlinearities of their Large-Scale Macroeconomic Models?", Bank of Canada Staff Working Paper 2017-21

Miyamoto, Wataru & Nguyen, Thuy Lan, "Understanding the Cross-Country Effects of US Technology Shocks", Bank of Canada Staff Working Paper 2017-23

Sadaba, Barbara & Pozzi, Lorenzo, "Detecting Scapegoat Effects in the Relationship Between Exchange Rates and Macroeconomic Fundamentals", Bank of Canada Staff Working Paper 2017-22

Verstraete, Matthieu & Suchanek, Lena, "Understanding Monetary Policy and its Effects: Evidence from Canadian Firms Using the Business Outlook Survey", Bank of Canada Staff Working Paper 2017-24

STAFF DISCUSSION PAPERS

Chernis, Tony & Cheung, Calista & Velasco, Gabriella, "A Three-Frequency Dynamic Factor Model for Nowcasting Canadian Provincial GDP Growth", Bank of Canada Staff Discussion Paper 2017-8

Sutherland, Christopher S., "What Explains Month-End Funding Pressure in Canada?", Bank of Canada Staff Discussion Paper 2017-9

ABSTRACTS

Importers and Exporters in Exchange Rate Pass-Through and Currency Invoicing

This paper investigates the impact of market structure on the joint determination of exchange rate pass-through and currency of invoicing in international trade. A novel feature of the study is the focus on market share of firms on both sides of the market—that is, exporting firms and importing firms. A model of monopolistic competition with heterogeneous firms has the following set of predictions: a) exchange rate pass-through should be non-monotonic and U-shaped in the market share of exporting firms, but monotonically declining in the market share of importers; b) exchange rate pass-through should be lower, the higher is local currency invoicing of imports; and c) producer currency invoicing should be related non-monotonically and U-shaped to exporter market share, and monotonically declining in importing firms' market share. We test these predictions using a new and large micro data set covering the universe of Canadian imports over a six-year period. The data strongly support all three predictions.

Volatility Risk and Economic Welfare

This paper examines the effects of time-varying volatility on welfare. I construct a tractable endogenous growth model with recursive preferences, stochastic volatility, and capital adjustment costs. The model shows that a rise in volatility can decelerate growth in the absence of any level shocks. In contrast to level risk, which is always welfare reducing for a risk-averse household, volatility risk can increase or decrease welfare, depending on model parameters. When calibrated to U.S. data, the model finds that the welfare cost of volatility risk is largely negligible under plausible model parameterizations.

Expropriation risk and FDI in developing countries: Does return of capital dominate return on capital?

Previously reported effects of institutional quality and political risks on foreign direct investment (FDI) are mixed and, therefore, difficult to interpret. We present empirical evidence suggesting a relatively clear, statistically robust, and intuitive characterization. Institutional factors that affect the likelihood of an abrupt and total loss of foreigners' capital (i.e., return of capital) dominate factors that affect rates of return conditional on a strictly positive terminal investment value (i.e., return on capital). The evidence is consistent with the hypothesis that expropriation risk is most important among the available measures of different dimensions of institutional quality. A one-standard-deviation reduction in expropriation risk is associated with a 72% increase in FDI, which is substantially larger than the effects of any other dimensions of institutional quality as simultaneously estimated in our empirical models of expected FDI inflows. We show that this evidence is consistent with the predictions of a standard theory of FDI under imperfect contract enforcement and multiple dimensions of political risk.

Does institutional quality resolve the Lucas Paradox?

The Lucas Paradox observes that capital flows predominantly to relatively rich countries, contradicting the neoclassical prediction that it should flow to poorer capital-scarce countries. In an influential study, Alfaro, Kalemli-Ozcan, and Volosovych (AKV) argue that cross-country variation in institutional quality can fully explain the Paradox, contending that if institutional quality is included in regression models explaining international capital inflows, a country's level of economic development is no longer statistically significant. We replicate AKV's results using their cross-sectional IFS capital flow data. Motivated by the importance of conducting inference in statistically adequate models, we focus on misspecification testing of alternative functional forms of their empirical model of capital flows. We show that their resolution of the Paradox relies on inference in a misspecified model. In models that do not fail basic misspecification tests, even though institutional quality is a significant determinant of capital inflows, a country's level of economic development also remains a significant predictor. The same conclusions are reached using an extended dataset covering more recent IFS international capital flow data, first-differenced capital stock data and additional controls.

House Prices, Consumption and the Role of Non-Mortgage Debt

This paper evaluates the strength of the relationship between house prices and consumption, through the use of debt. Whereas the existing literature has largely studied the effects of house prices on homeowner total or mortgage debt, we focus on the non-mortgage component of household borrowing, using Canadian household-level data for 1999-2007. We rely on variation in regional house prices, homeownership status and age to establish the relationship between house prices and non-mortgage debt. Then, using direct information on debt uses, we determine that house price growth was associated with a non-trivial fraction of concurrent aggregate non-housing consumption growth.

Dating Systemic Financial Stress Episodes in the EU Countries

This paper introduces a new methodology to date systemic financial stress events in a transparent, objective and reproducible way. The financial cycle is captured by a monthly Country-Level Index of Financial Stress (CLIFS). Based on two Markov-switching and one threshold vector autoregressive model, information from the CLIFS and industrial production are combined to identify those episodes of financial market stress that are associated with a substantial negative impact on the real economy. By applying this framework to 27 European Union countries, the paper is a first attempt to provide a chronology of systemic financial stress episodes as a complement to the expert-detected events that are currently available.

Asset encumbrance, bank funding and fragility

We propose a model of asset encumbrance by banks subject to rollover risk and study the consequences for fragility, funding costs, and prudential regulation. A bank's choice of encumbrance trades off the benefit of expanding profitable investment funded by cheap long-term secured debt against the cost of greater fragility due to unsecured debt runs. We derive several testable implications about privately optimal encumbrance ratios. Deposit insurance or wholesale funding guarantees induce excessive encumbrance and exacerbate fragility. We show how regulations such as explicit limits on encumbrance ratios and revenue-neutral Pigouvian taxes can mitigate the risk-shifting incentives of banks.

Should Central Banks Worry About Nonlinearities of their Large-Scale Macroeconomic Models?

How wrong could policymakers be when using linearized solutions to their macroeconomic models instead of nonlinear global solutions? This question became of much practical interest during the Great Recession and the recent zero lower bound crisis. We assess the importance of nonlinearities in a scaled-down version of the Terms of Trade Economic Model (ToTEM), the main projection and policy analysis model of the Bank of Canada. In a meticulously calibrated "baby" ToTEM model with 21 state variables, we find that local and global solutions have similar qualitative implications in the context of the recent episode of the effective lower bound on nominal interest rates in Canada. We conclude that the Bank of Canada's analysis would not improve significantly by using global nonlinear methods instead of a simple linearization method augmented to include occasionally binding constraints. However, we also find that even minor modifications in the model's assumptions, such as a variation in the closing condition, can make nonlinearities quantitatively important.

Understanding the Cross-Country Effects of US Technology Shocks

Business cycles are substantially correlated across countries. Yet most existing models are not able to generate substantial transmission through international trade. We show that the nature of such transmission depends fundamentally on the features determining the responsiveness of labor supply and labor demand to international relative prices. We augment a standard international macroeconomic model to incorporate three key features: a weak short-run wealth effect on labor supply, variable capital utilization, and imported intermediate inputs for production. This model can generate large and significant endogenous transmission of technology shocks through international trade. We demonstrate this by estimating the model using data for Canada and the United States with limited-information Bayesian methods. We find that this model can account for the substantial transmission of permanent US technology shocks to Canadian aggregate variables such as output and hours, documented in a structural vector autoregression. Transmission through international trade is found to explain the majority of the business cycle co-movement between the United States and Canada.

Detecting Scapegoat Effects in the Relationship Between Exchange Rates and Macroeconomic Fundamentals

This paper presents a new testing method for the scapegoat model of exchange rates that aims to tighten the link between the theory on scapegoats and its empirical implementation. This new testing method consists of a number of steps. First, the exchange rate risk premium, the unobserved time-varying structural impact of the macro fundamentals on the exchange rate and the unobserved fundamental of the model are estimated. Next, the scapegoat terms in the model's exchange rate equation are estimated under the restrictions implied by these first-step estimates. The scapegoat terms consist of macro fundamentals, i.e., potential scapegoats, interacted with parameter expectations, where the latter are proxied using survey data. We use a Bayesian Gibbs sampling approach to estimate the different steps of the methodology for eight countries (five developed, three emerging) versus the US over the period 2002Q1–2014Q4. The macro fundamentals we consider are real GDP growth, the inflation rate, the long-run nominal interest rate and the current account to GDP ratio. We calculate the posterior probabilities that these macro fundamentals are scapegoats. For the inflation rate, these probabilities are considerably higher than the imposed prior probabilities of 0.5 in five out of eight countries (including the Anglo-Saxon economies). We find little evidence to suggest that the other macro fundamentals we consider are scapegoats.

Understanding Monetary Policy and its Effects: Evidence from Canadian Firms Using the Business Outlook Survey

This paper shows (i) that business sentiment, as captured by survey data, matters for monetary policy decisions in Canada, and (ii) how business perspectives are affected by monetary policy shocks. Measures of business sentiment (soft data) are shown to have systematic explanatory power for monetary policy decisions over and above typical Taylor rule variables. Stronger (weaker) survey results lead to higher (lower) policy rates over the period of study (2001–16). Moreover, we study the effects of monetary policy shocks on firms' business perspectives using data from the Bank of Canada's quarterly Business Outlook Survey. The monetary shocks are defined as the fitted residuals of the Taylor rule. Overall, the results are in agreement with the qualitative effects of monetary policy shocks described in the literature. For instance, an unanticipated tightening in monetary policy a year ago (or more) results in firms reporting tighter lending conditions today, as well as slower expected dynamics of future sales, wage growth and output prices. The results are qualitatively similar whether shocks are derived from a standard Taylor rule (hard data) or from an alternative Taylor rule (soft data).

A Three-Frequency Dynamic Factor Model for Nowcasting Canadian Provincial GDP Growth

This paper estimates a three-frequency dynamic factor model for nowcasting Canadian provincial gross domestic product (GDP). Canadian provincial GDP is released by Statistics Canada on an annual basis only, with a significant lag (11 months). This necessitates a mixed-frequency approach that can process timely monthly data, the quarterly national accounts and the annual target variable. The model is estimated on a wide set of provincial, national and international data. We assess the extent to which these indicators can be used to nowcast annual provincial GDP in a pseudo real-time setting and construct indicators of unobserved monthly GDP for each province that can be used to assess the state of regional economies. The monthly activity indicators fit the data well in-sample, are able to track business-cycle turning points across the provinces, and showcase the significant regional heterogeneity that characterizes a large diverse country like Canada. They also provide more timely indications of business-cycle turning points and are able to pick up shorter periods of economic contraction that would not be observed in the annual average. In a pseudo real-time exercise, we find the model outperforms simple benchmarks and is competitive with more sophisticated mixed frequency approaches such as MIDAS models.

What Explains Month-End Funding Pressure in Canada?

The Canadian overnight repo market persistently shows signs of latent funding pressure around month-end periods. Both the overnight repo rate and Bank of Canada liquidity provision tend to rise in these windows. This paper proposes three non-mutually exclusive hypotheses to explain this phenomenon. First, month-end funding pressure may be caused by search frictions. Market participants place a premium on liquidity around month-end periods because of the confluence of a generalized liquidity preference, heightened month-end forecast uncertainty, and resultant search frictions in the repo market. Second, this funding pressure could be attributed to spillovers from the US overnight repo market. Third, month-end funding pressure might be associated with large Canadian banks' end-of-month repo adjustments. By combining market, central-bank and payments data, this paper provides evidence that the first hypothesis explains the latent funding pressure observed on the first day of the month. Using market and non-public regulatory data, this paper further argues that the second and third hypotheses are much less plausible.