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

PUBLISHED PAPERS

In Press

Allen, Jason, H. Evren Damar & David Martinez-Miera, "Consumer Bankruptcy, Bank Mergers, and Information", Review of Finance, July 2016, Volume 20, Issue 4, Pages 1289-1320

Campolmi, Alessia & Stefano Gnocchi, "Labor Market Participation, Unemployment and Monetary Policy", Journal of Monetary Economics, May 2016, Volume 79, Pages 17-29

Chiu, Jonathan & Thorsten V. Keoppl, "Trading Dynamics with Adverse Selection and Search: Market Freeze, Intervention and Recovery", Review of Economic Studies, July 2016, Volume 83, Issue 3, Pages 969-1000

Gnocchi, Stefano & Daniela Hauser, Evi Pappa,"Housework and Fiscal Expansions", Journal of Monetary Economics, May 2016, Volume 79, Pages 94-108

Imura, Yoko," Endogenous Trade Participation with Price Rigidities", Journal of International Economics, May 2016, Volume 100, Pages 14-33

Van Oordt, Maarten & Chen Zhou, "Systemic Tail Risk", Journal of Financial and Quantitative Analysis, April 2016, Volume 51, Issue 2, Pages 685-705

Forthcoming

Bruno, Valentina G., Bahattin Büyükşahin & Michel A. Robe, "The Financialization of Food?", American Journal of Agricultural Economics

Ehrmann, Michael & Michael Ziegelmeyer "Household Risk Management and Actual Mortgage Choice in the Euro Area", Journal of Money, Credit and Banking

Feunou, Bruno & Jean-Sébastien Fontaine, "Bond Risk Premia and Gaussian Term Structure Models", Management Science

Hernandez, Lola, Nicole Jonker & Anneke Kosse, "Cash versus Debit Card: The Role of Budget Control", Journal of Consumer Affairs

Paligorova, Teodora & João A. C. Santos, "Banks' Exposure to Rollover Risk and the Maturity of Corporate Loans", Review of Finance

STAFF WORKING PAPERS

Champagne, Julien, Guillaume Poulin-Bellisle & Rodrigo Sekkel, "The Real-Time Properties of the Bank of Canada's Staff Output Gap Estimates", Bank of Canada Staff Working Paper 2016-28

De Haan, Leo & Maarten van Oordt, "Timing of Banks' Loan Loss Provisioning During the Crisis", Bank of Canada Staff Working Paper 2016-27

Olivares, Ariel & Michael Tompkins, "Clearing and Settlement Systems from Around the World: A Qualitative Analysis", Bank of Canada Staff Discussion Paper 2016-14

Poloz, Stephen S., "The Doug Purvis Memorial Lecture—Monetary/Fiscal Policy Mix and Financial Stability: The Medium Term Is Still the Message", Bank of Canada Staff Discussion Paper 2016-13

Schroth, Josef, "Financial Crisis Interventions", Bank of Canada Staff Working Paper 2016-29

ABSTRACTS

Consumer Bankruptcy, Bank Mergers, and Information

This article analyzes the relationship between consumer bankruptcy patterns and the destruction of soft information caused by mergers. Using a major Canadian bank merger as a source of exogenous variation in local banking conditions, we show that local markets affected by the merger exhibit an increase in consumer bankruptcy rates post-merger. The evidence is consistent with the most plausible mechanism being the disruption of consumer–bank relationships. Markets affected by the merger show a decrease in the merging institutions' branch presence and market share, including those stemming from higher switching rates. We rule out alternative mechanisms such as changes in quantity of credit, loan rates, or observable borrower characteristics.

Labor Market Participation, Unemployment and Monetary Policy

Models of unemployment and monetary policy usually assume constant participation. Incorporating a participation decision into a standard New Keynesian model with matching frictions, we show that market tightness becomes endogenously more volatile because both the opportunity cost of home production and the reservation wage vary with participation. The model can simultaneously explain the low volatility of participation, the high volatility of unemployment, and a procyclical workers′ outside option of working. A policy of strict inflation targeting is close to optimal, and increasing the response of the interest rate to inflation does not have a large impact on the volatility of unemployment because of the endogenous response of participation.

Trading Dynamics with Adverse Selection and Search: Market Freeze, Intervention and Recovery

We study trading dynamics in an asset market where the quality of assets is private information and finding a counterparty takes time. When trading ceases in equilibrium as a response to an adverse shock to asset quality, a government can resurrect trading by buying up lemons which involves a financial loss. The optimal policy is centred around an announcement effect where trading starts already before the intervention for two reasons. First, delaying the intervention allows selling pressure to build up thereby improving the average quality of assets for sale. Secondly, intervening at a higher price increases the return from buying an asset of unknown quality. It is optimal to intervene immediately at the lowest price when the market is sufficiently important. For less important markets, when the shock to quality and search frictions are small, it is optimal to rely on the announcement effect. Here delaying the intervention and fostering the effect by intervening at the highest price tend to be complements.

Housework and Fiscal Expansions

In an otherwise-standard business cycle model with housework, calibrated consistently with data on time use, we discipline complementarity between consumption and hours worked and relate its strength to the size of fiscal multipliers. Evidence on the substitutability between home and market goods confirms that complementarity is an empirically relevant driver of fiscal multipliers. However, in a housework model substantial complementarity can be generated without imposing a low wealth effect, which contradicts the microeconomic evidence. Also, explicitly modeling housework matters for assessing the welfare effects of government spending, which are understated by theories that neglect substitutability between home-produced and market goods.

Endogenous Trade Participation with Price Rigidities

This paper investigates the interaction of endogenous export participation and nominal rigidities and its implications for the dynamics of intensive and extensive margins of trade. I develop a two-country dynamic stochastic general equilibrium model wherein firms make state-dependent decisions on entry and exit in the export market, and where price adjustments are staggered across firms and time.

My model reveals that, when an aggregate shock has significant effects on optimal export prices, such as a shock to domestic productivity or monetary policy, it generates large responses in the number of exporters. These movements in turn amplify responses along the intensive margin of trade and international transmission of the shock. I trace this result to the micro-level price rigidities in my model. Because staggered price changes delay intensive margin adjustments among incumbent exporters following aggregate shocks, they permit sizable shifts in the profitability of export participation. Whereas such shifts are virtually eliminated in models of exporter entry and exit with flexible prices, here they are sufficient to induce quantitatively important movements along the extensive margin of trade.

Systemic Tail Risk

We test for the presence of a systematic tail risk premium in the cross section of expected returns by applying a measure of the sensitivity of assets to extreme market downturns, the tail beta. Empirically, historical tail betas help predict the future performance of stocks in extreme market downturns. During a market crash, stocks with historically high tail betas suffer losses that are approximately 2 to 3 times larger than their low-tail-beta counterparts. However, we find no evidence of a premium associated with tail betas. The theoretically additive and empirically persistent tail betas can help assess portfolio tail risks.

The Financialization of Food

Commodity-equity return co-movements rose dramatically during the Great Recession. This development took place following what has been dubbed the "financialization" of commodity markets. We first document changes since 1995 in the relative importance of financial institutions' activity in agricultural futures markets. We then use a structural VAR model to ascertain the role of that activity in explaining correlations between weekly grain, livestock, and equity returns in 1995-2015. We provide robust evidence that, accounting for shocks which are idiosyncratic to agricultural markets, world business cycle shocks have a substantial and long-lasting impact on the latter's co-movements with financial markets. In contrast, changes in the intensity of financial speculation have an impact on cross-market return linkages that is shorter-lived and not statistically significant in all model specifications.

Household Risk Management and Actual Mortgage Choice in the Euro Area

Mortgages constitute the largest part of household debt. An essential choice when taking out a mortgage is between fixed-interest-rate mortgages (FRMs) and adjustable-interest-rate mortgages (ARMs). However, so far, no comprehensive cross-country study has analyzed what determines household demand for mortgage types, a task that this paper takes up using new data for the euro area. Our results support the hypothesis of Campbell and Cocco (2003) that the decision is best described as household risk management: income volatility reduces the take-out of ARMs, while increasing duration and relative size of the mortgages increase it. Controlling for other supply factors through country fixed effects, loan pricing also matters, as expected, with ARMs becoming more attractive when yield spreads rise. The paper also conducts a simulation exercise to identify how the easing of monetary policy during the financial crisis affected mortgage holders. It shows that the resulting reduction in mortgage rates produced a substantial decline in debt burdens among mortgage-holding households, especially in countries where households have higher debt burdens and a larger share of ARMs, as well as for some disadvantaged groups of households, such as those with low income.

Bond Risk Premia and Gaussian Term Structure Models

Cochrane and Piazzesi (2005) show that (i) lagged forward rates help predict bond returns and that (ii) modern Markovian dynamic term structure models (DTSMs) cannot match the evidence. We develop the family of Conditional Mean DTSMs where the dynamics depend on current yields and their history through a moving-average component. Our preferred Conditional Mean model combines one moving-average with the usual three Gaussian risk factors, closely matches the bond risk premium measured from predictive regressions and provides better forecasts of bond returns. Our framework nests Duffee (2011) models with a small “hidden” factor and our results compare favorably with his 5-factor model. Conditional Mean models are easier to estimate than state-space term structure based on Kalman estimates of latent factors.

Cash versus Debit Card: The Role of Budget Control

Due to the financial crisis, an increasing number of households face financial problems. This may lead to an increasing need for monitoring spending and budgets. We demonstrate that both cash and the debit card are perceived as helpful in this respect. We show that, on average, consumers responsible for financial decision making within a household find cash and the debit card equally helpful for monitoring their household finances. Individuals differ in major respects, however. In particular, low earners and the liquidity-constrained prefer cash as a budgeting tool. Finally, we present evidence that at an aggregated level, such preferences strongly affect consumer payment behavior. These findings suggest that the substitution of cash by cards may slow down because of the financial crisis.

Banks' Exposure to Rollover Risk and the Maturity of Corporate Loans

In this paper, we show that when banks increase their use of wholesale funding they shorten the maturity of loans to corporations. This effect appears to be linked to banks' exposure to rollover risk resulting from their increasing use of short-term uninsured funding. Banks that use more wholesale funding shorten both the maturity of newly issued loans and the maturity of their loan portfolios.

These results are not present among banks that rely predominantly on insured deposits. The link between wholesale funding and loan maturity is robust, and holds when we include firm-year fixed effects, suggesting that the decline in loan maturity is bank driven. In line with this premise, we find that the slope of the loan yield curve becomes steeper for banks that use more wholesale funding, and that borrowers turn to the bond market to raise funding with longer maturity in response to banks' loan maturity shortening.

The Real-Time Properties of the Bank of Canada's Staff Output Gap Estimates

We study the revision properties of the Bank of Canada's staff output gap estimates since the mid-1980s. Our results suggest that the average staff output gap revision has decreased significantly over the past 15 years, in line with recent evidence for the U.S. Alternatively, revisions from purely statistical methods to estimate the gap have not experienced the same drop in magnitude. We then examine the usefulness of real-time gap estimates for forecasting inflation and find no deterioration in forecast performance when inflation projections are conditioned on real time rather than on final estimates of the gap.

Timing of Banks' Loan Loss Provisioning During the Crisis

We estimate a panel error correction model for loan loss provisions, using unique supervisory data on flow of funds into and out of the allowance for loan losses of 25 Dutch banks in the post-2008 crisis period. We find that these banks aim for an allowance of 49% of impaired loans. In the short run, however, the adjustment of the allowance is only 29% of the change in impaired loans. The deviation from the target is made up by (a) larger additions to allowances in subsequent quarters and (b) smaller reversals of allowances when loan losses do not materialize. After one quarter, the adjustment toward the target level is 34% and after four quarters is 81%. For individual banks, there are substantial differences in timing of provisioning for bad loan losses. We present two model-based metrics that inform supervisors on the extent to which banks' short-term provisioning behaviour is out of sync with their target levels.

Clearing and Settlement Systems from Around the World: A Qualitative Analysis

As Canada continues to engage in a dialogue to develop the approach to modernizing its core payment systems, we analyze the core payment systems that exist in countries around the world. We study payment systems in 27 jurisdictions, encompassing a broad range of geographic regions, through three levels of analysis. First, we identify and discuss the different types of core systems, and the prevalence of each of them. At a high level, we find that most jurisdictions have added a new real-time retail system, all have a batch retail payment system, and the vast majority have made upgrades to their large-value payment systems. Second, we evaluate what core system upgrades have resulted in improved access, functionality, interoperability, timeliness and risk management. Finally, we analyze the overarching design found in multiple core payment systems across jurisdictions and identify four distinct core payment system configurations. These main core system configurations reflect the different approaches taken to modernize, depending on jurisdictional factors, including public policy objectives, drivers, needs, payment instruments and gaps resulting from legacy systems. We conclude that it is necessary to have a complete understanding of modernization objectives, based on each country's unique jurisdictional factors. A comprehensive set of modernization objectives can then be used to develop a holistic multi-system plan, designed to modernize each core payment system in a complementary manner.

The Doug Purvis Memorial Lecture—Monetary/Fiscal Policy Mix and Financial Stability: The Medium Term Is Still the Message

Financial stability risks have become topical in the wake of the global financial crisis and the subsequent extended period of very low interest rates. This paper investigates the significance of the mix of monetary and fiscal policies for financial stability through counterfactual simulations of three key historical episodes, using the Bank's main policy model, ToTEM (Terms-of-Trade Economic Model). The paper finds that there is an intimate relationship between the monetary/fiscal policy mix and the dynamics of both private sector and public sector debt accumulation. No attempt is made to develop criteria for policy mix optimization, since it is clear from the model simulations that the appropriate policy mix is highly state-dependent. This finding points to the need for a coherent framework for weighing the relative financial and macroeconomic consequences of accumulating public sector versus private sector debt. Furthermore, the analysis suggests that there are potential benefits to ex ante monetary/fiscal policy coordination, and that Canada's policy framework—where the monetary and fiscal authorities jointly agree on an inflation target while enshrining central bank operational independence—represents an elegant coordinating mechanism.

Financial Crisis Interventions

This paper develops a model of an economy where bank credit supports both productive investment and individual consumption smoothing in the face of idiosyncratic income risk. Bank credit is constrained by bank equity capital. When policy-makers inject equity capital during financial crises, they trade off stimulating credit supply immediately against long-term distortions related to funding equity injections. I calibrate my model and show that the bank equity capital injection that maximizes average utilitarian welfare redistributes from the poor to the wealthy. While wealthy savers benefit immediately from an increased supply of safe assets, less affluent borrowers and savers suffer from long-term distortions.