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Bank of Canada Monthly Research Update

January 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

Note

Since there was no newsletter at the end of December, this January issue includes both December and January inputs.

In Press

Aizenman, Joshua and Gurnain Pasricha, "Why Do Emerging Markets Liberalize Capital Outflow Controls? Fiscal versus Net Capital Flow Concerns", Journal of International Money and Finance, 2013, 39, p28-64.

Bailliu, Jeannine, Ali Dib, Takashi Kano and Lawrence Schembri, "Multilateral Adjustment, Regime Switching and Real-Exchange Rate Dynamics", North American Journal of Economics and Finance Vol 27. January 27, 2014, p68-67

Forthcoming

Baumeister, Christiane and Lutz Kilian, "Real-Time Analysis of Oil Price Risks Using Forecast Scenarios", IMF Economic Review

Johnson, Ken H., Zhenguo Lin and Jia Xie, "Dual Agent Distortions in Real Estate Transactions", Real Estate Economics

Leiva-Leon, Danilo, "Real vs. nominal cycles: a multistate Markov-switching bi-factor approach", Studies in Nonlinear Dynamics & Econometrics

WORKING PAPERS

Arjani, Neville and Graydon Paulin, "Lessons from the Financial Crisis: Bank Performance and Regulatory Reform", Bank of Canada Discussion Paper 2013-4

Baumeister, Christiane and Lutz Kilian, "Do Oil Price Increases Cause Higher Food Prices?", Bank of Canada Working Paper 2013-52

Beyhaghi, Mehdi, Chris D'Souza and Gordon S. Roberts, "Funding Advantage and Market Discipline in the Canadian Banking Sector", Bank of Canada Working Paper 2013-50

Chaker, Selma and Nour Meddahi, "Volatility Forecasting when the Noise Variance Is Time-Varying", Bank of Canada Working Paper 2013-48

Chaker, Selma and Nour Meddahi, "A Distributional Approach to Realized Volatility", Bank of Canada Working Paper 2013-49

Ehrmann, Michael and David-Jan Jansen, "It Hurts (Stock Prices) When Your Team Is About to Lose a Soccer Match", Bank of Canada Working Paper 2014-2 and De Nederlandsche Bank Working Paper 412

Ehrmann, Michael and Michael Ziegelmeyer, "Household Risk Management and Actual Mortgage Choice in the Euro Area", Bank of Canada Working Paper 2014-1 and European Working Paper Series No. 1631

Ghysels, Eric, Pierre Guérin and Massimiliano Marcellino, "Regime Switches in the Risk-Return Trade-Off", Bank of Canada Working Paper 2013-51

Gungor, Sermin and Jesus Sierra, "Search-for-Yield in Canadian Fixed-Income Mutual Funds and Monetary Policy", Bank of Canada Working Paper 2014-3

Hauser, Daniela, "Technology Shocks, Labour Mobility and Aggregate Fluctuations", Bank of Canada Working Paper 2014-4

Kyui, Natalia, "Expansion of Higher Education, Employment and Wages: Evidence from the Russian Transition", Bank of Canada Working Paper 2013-45

Lopez, Jorge A. Cruz, Jeffrey H. Harris, Christophe Hurlin and Christophe Pérignon, "CoMargin", Bank of Canada Working Paper 2013-47

Seki, Mai, "Heterogeneous Returns to U.S. College Selectivity and the Value of Graduate Degree Attainment", Bank of Canada Working Paper 2013-46

ABSTRACTS

Why Do Emerging Markets Liberalize Capital Outflow Controls? Fiscal versus Net Capital Flow Concerns

In this paper, we provide empirical evidence on the factors that motivated emerging economies to change their capital outflow controls in recent decades. Liberalization of capital outflow controls can allow emerging-market economies (EMEs) to reduce net capital inflow (NKI) pressures, but may cost their governments the fiscal revenues that external financial repression generates. Our results indicate that external repression revenues in EMEs declined substantially in the 2000s compared with the 1980s. In line with this decline in external repression revenues and their growth accelerations in the 2000s, concerns related to net capital inflows took predominance over fiscal concerns in the decisions to liberalize capital outflow controls. Overheating and foreign exchange valuation

concerns arising from NKI pressures were important, but so were financial stability concerns and concerns about macroeconomic volatility. Emerging markets facing high volatility in net capital inflows and higher short-term balance-sheet exposures liberalized outflows less. Countries eased outflows more in response to higher appreciation pressures in the exchange market, stock market appreciation, real exchange rate volatility, net capital inflows and accumulation of reserves.

Multilateral Adjustment, Regime Switching and Real-Exchange Rate Dynamics

The purpose of this paper is to examine the role of multilateral adjustment to U.S. external imbalances in driving bilateral real exchange rate movements by developing a new regime-switching model that consists of a Markov-switching model with a time-varying transition matrix that depends on a threshold variable. Consequently, the dynamics of the real exchange rate can be modeled in the context of two regimes: one in which multilateral adjustment to large U.S. external imbalances is an important factor driving movements in the real exchange rate and the second in which the real exchange rate is driven mainly by country-specific macroeconomic fundamentals. We apply this model to the bilateral real Canada–U.S. dollar exchange rate and compare its performance to several other alternative models. All of the models are estimated using a Bayesian approach. Our findings suggest that during periods of large U.S. imbalances, an exchange rate model for the real Canada–U.S. dollar exchange rate should allow for multilateral adjustment effects.The purpose of this paper is to examine the role of multilateral adjustment to U.S. external imbalances in driving bilateral real exchange rate movements by developing a new regime-switching model that consists of a Markov-switching model with a time-varying transition matrix that depends on a threshold variable. Consequently, the dynamics of the real exchange rate can be modeled in the context of two regimes: one in which multilateral adjustment to large U.S. external imbalances is an important factor driving movements in the real exchange rate and the second in which the real exchange rate is driven mainly by country-specific macroeconomic fundamentals. We apply this model to the bilateral real Canada–U.S. dollar exchange rate and compare its performance to several other alternative models. All of the models are estimated using a Bayesian approach. Our findings suggest that during periods of large U.S. imbalances, an exchange rate model for the real Canada–U.S. dollar exchange rate should allow for multilateral adjustment effects.

Real-Time Analysis of Oil Price Risks Using Forecast Scenarios

Recently, there has been increased interest in real-time forecasts of the real price of crude oil. Standard oil price forecasts based on reduced-form regressions or based on oil futures prices do not allow consumers of forecasts to explore how much the forecast would change relative to the baseline forecast under alternative scenarios about future oil demand and oil supply conditions. Such scenario analysis is of central importance for end-users of oil price forecasts interested in evaluating the risks underlying these forecasts. We show how policy-relevant forecast scenarios can be constructed from recently proposed structural vector autoregressive models of the global oil market and how changes in the probability weights attached to these scenarios affect the upside and downside risks embodied in the baseline real-time oil price forecast. Such risk analysis helps forecast users understand what assumptions are driving the forecast. An application to real-time data for December 2010 illustrates the use of these tools in conjunction with reduced-form vector autoregressive forecasts of the real price of oil, the superior real-time forecast accuracy of which has recently been established.

Dual Agent Distortions in Real Estate Transactions

This paper investigates price distortions in dual agent real estate transactions. Consistent with the literature, we find that dual agent has a null effect on sale price. However, dual agent distortions on sale price emerge after controlling for the ownership of the property. We find that dual agent is associated with a 6.35 percent price premium on agent owned properties, but a 25.10 percent price discount on government owned properties and a 5.14 percent discount on bank owned properties. In addition, market conditions also play an important role in such price distortions.

Real vs. nominal cycles: a multistate Markov-switching bi-factor approach

This paper proposes 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. The impact of shocks originated in the housing market over the business cycle is also assessed, finding that recessions are usually accompanied by housing deflationary pressures, while expansions are mainly influenced by housing demand shocks, with the only exception occurred during the period surrounding the "Great Recession," affected by expansionary housing supply shocks.

Cash Management and Payment Choices: A Simulation Model with International Comparisons

Despite various payment innovations, today, cash is still heavily used to pay for low-value purchases. This paper develops a simulation model to test whether standard implications of the theory on cash management and payment choices can explain the use of payment instruments by transaction size. In particular, using diary survey data from Canada, France, Germany and the Netherlands, we test the assumption that cash is still the most efficient payment instrument, and the idea that people hold cash for precautionary reasons when facing uncertainty about their future purchases. The results of the simulations show that these two factors are significant determinants of the high shares of low-value cash payments in Canada, France and Germany. Yet, they are not so crucial in the Netherlands, which exhibits a significant share of low-value card transactions. We discuss how the differences in payment markets across countries may explain the differences in the performance of the model.

Lessons from the Financial Crisis: Bank Performance and Regulatory Reform

The financial systems of some countries fared materially better than others during the global financial crisis of 2007-09. The performance of the Canadian banking system during this period was relatively strong. Using a case study approach together with empirical analysis, we assess some of the factors that contributed to this favourable outcome with a view to drawing useful lessons for regulatory reform. We argue that an important contributor to positive bank performance was a solid approach to risk management on the part of the Canadian banking system, an approach that was actively fostered by the domestic authorities. Efforts to buttress risk management were favourably influenced by several stressful yet instructive episodes in Canadian financial history. The 2007-09 crisis experience suggests a need to make risk management a pervasive element of financial system culture and emphasizes the importance of robust liquidity management.

Do Oil Price Increases Cause Higher Food Prices?

U.S. retail food price increases in recent years may seem large in nominal terms, but after adjusting for inflation have been quite modest even after the change in U.S. biofuel policies in 2006. In contrast, increases in the real prices of corn, soybeans, wheat and rice received by U.S. farmers have been more substantial and can be linked in part to increases in the real price of oil. That link, however, appears largely driven by common macroeconomic determinants of the prices of oil and agricultural commodities, rather than the pass-through from higher oil prices. We show that there is no evidence that corn ethanol mandates have created a tight link between oil and agricultural markets. Rather, increases in food commodity prices not associated with changes in global real activity appear to reflect a wide range of idiosyncratic shocks ranging from changes in biofuel policies to poor harvests. Increases in agricultural commodity prices, in turn, contribute little to U.S. retail food price increases, because of the small cost share of agricultural products in food prices. There is no evidence that oil price shocks have caused more than a negligible increase in retail food prices in recent years. Nor is there evidence for the prevailing wisdom that oil-price-driven increases in the cost of food processing, packaging, transportation and distribution are responsible for higher retail food prices. Finally, there is no evidence that oil-market-specific events or, for that matter, U.S. biofuel policies help explain the evolution of the real price of rice, which is perhaps the single most important food commodity for many developing countries.

Funding Advantage and Market Discipline in the Canadian Banking Sector

We employ a comprehensive data set and a variety of methods to provide evidence on the magnitude of large banks' funding advantage in Canada, and on the extent to which market discipline exists across different securities issued by the Canadian banks. The banking sector in Canada provides a unique setting in which to examine market discipline along with the prospects of proposed reforms, because Canada has no history of government bailouts. Our results suggest that large banks likely have a funding advantage over small banks after controlling for bank-specific and market risk factors. Working with hand-collected market data on debt issues by large banks, we also find that market discipline exists for subordinated debt and not for senior debt.

Volatility Forecasting when the Noise Variance Is Time-Varying

This paper explores the volatility forecasting implications of a model in which the friction in high-frequency prices is related to the true underlying volatility. The contribution of this paper is to propose a framework under which the realized variance may improve volatility forecasting if the noise variance is related to the true return volatility. The realized variance is defined as the sum of the squared intraday returns. When based on high-frequency returns, the realized variance would be non-informative for the true volatility under the standard framework. In this new setting, we revisit the results of Andersen et al. (2011) and quantify the predictive ability of several measures of integrated variance. Importantly, the time-varying aspect of the noise variance implies that the forecast of the integrated variance is different from the forecast of a realized measure. We characterize this difference, which is time-varying, and propose a feasible bias correction. We assess the usefulness of our approach for realistic models, then study the empirical implication of our method when dealing with forecasting integrated variance or trading options. The empirical results for Alcoa stock show several improvements resulting from the assumption of time-varying noise variance.

A Distributional Approach to Realized Volatility

This paper proposes new measures of the integrated variance, measures which use high-frequency bid-ask spreads and quoted depths. The traditional approach assumes that the mid-quote is a good measure of frictionless price. However, the recent high-frequency econometric literature takes the mid-quote as a noisy measure of the frictionless price and proposes new and robust estimators of the integrated variance. This paper forgoes the common assumption of an additive friction term, and demonstrates how the quoted depth may be used in the construction of refined realized volatility measures under the assumption that the true frictionless price lies between the bid and the ask. More specifically, we make assumptions about the conditional distribution of the frictionless price given the available information, including quotes and depths. This distributional assumption leads to new measures of the integrated variance that explicitly incorporate the depths. We then empirically compare the new measures with the robust ones when dealing with forecasting integrated variance or trading options. We show that, in several cases, the new measures dominate the traditional measures.

It Hurts (Stock Prices) When Your Team Is About to Lose a Soccer Match

The end result of major sporting events has been shown to affect next-day stock returns through shifts in investor mood. By studying the soccer matches that led to the elimination of France and Italy from the 2010 FIFA World Cup, we show that mood-related pricing effects can materialize as sporting events unfold. We do this by using intraday stock prices for a firm cross-listed on the Paris and Milan stock exchanges. This strategy allows for a straightforward identification of pricing effects. During the soccer matches, stock prices in the country that eventually loses are lower by up to seven basis points. The probability of underpricing increases as elimination from the tournament becomes more likely.

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.

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.

Search-for-Yield in Canadian Fixed-Income Mutual Funds and Monetary Policy

This paper investigates the effects of monetary policy on the risk-taking behavior of fixed-income mutual funds in Canada. We consider different measures of the stance of monetary policy and investigate active variation in mutual funds’ risk exposure in response to monetary policy. We find evidence in support of a systematic link between monetary conditions and intertemporal variation in the risk-taking behavior of mutual funds. Specifically, following an expansionary monetary shift, funds actively increase default-risk exposure (i.e., search-for-yield). This is particularly evident in the post-crisis period where interest rates were kept low for a prolonged period of time.

Technology Shocks, Labour Mobility and Aggregate Fluctuations

We provide evidence regarding the dynamic behaviour of net labour flows across U.S. states in response to a positive technology shock. Technology shocks are identified as disturbances that increase relative state productivity in the long run for 226 state pairs, encompassing 80 per cent of labour flows across U.S. states in the 1976 - 2008 period. The data suggest heterogeneous responses of both employment and net labour flows across states, conditional on a positive technology shock. We build a two-region dynamic stochastic general equilibrium (DSGE) model with endogenous labour mobility and region-specific shocks to account for this evidence. We calibrate the model economy consistently with the observed differences in the degree of nominal rigidities across states, and show that we replicate the different patterns of the responses in employment and net labour flows across states following a technology shock.

Expansion of Higher Education, Employment and Wages: Evidence from the Russian Transition

This paper analyzes the effects of an educational system expansion on labour market outcomes, drawing upon a 15-year natural experiment in the Russian Federation. Regional increases in student intake capacities in Russian universities, a result of educational reforms, provide a plausibly exogenous variation in access to higher education. Additionally, the gradual nature of this expansion allows for estimation of heterogeneous returns to education for individuals who successfully took advantage of increasing educational opportunities. Using simultaneous equations models and a non-parametric model with essential heterogeneity, the paper identifies strong positive returns to education in terms of employment and wages. Marginal returns to higher education are estimated to decline for lower levels of individual unobserved characteristics that positively influence higher education attainment. Finally, the returns to higher education are found to decrease for those who, as a result of the reforms, increasingly pursued higher education.

CoMargin

We present CoMargin, a new methodology to estimate collateral requirements for central counterparties (CCPs) in derivatives markets. CoMargin depends on both the tail risk of a given market participant and its interdependence with other participants. Our approach internalizes market interdependencies and enhances the stability of CCPs, thereby reducing the systemic risk concerns associated with them. CoMargin can be estimated using a model-free and scenario-based methodology, validated using formal statistical tests, and generalized to any number of market participants. We assess and illustrate our methodology using proprietary data from the Canadian Derivatives Clearing Corporation (CDCC). Our data set, the first one of its kind to be used in an academic study, includes daily observations of the actual trading positions of all CDCC members from 2003 to 2011. We show theoretically and empirically that CoMargin outperforms existing margining systems by stabilizing the probability and minimizing the shortfall of simultaneous margin-exceeding losses. The relative performance of our methodology increases when trading similarities across clearing members or comovements among underlying assets increase, as was the case during the recent financial crisis.

Heterogeneous Returns to U.S. College Selectivity and the Value of Graduate Degree Attainment

Existing studies on the returns to college selectivity have mixed results, mainly due to the difficulty of controlling for selection into more-selective colleges based on unobserved ability. Moreover, researchers have not considered graduate degree attainment in the analysis of labour market returns to college selectivity. In this paper, I estimate the effect of a U.S. four-year undergraduate program's selectivity on wages, including graduate degree attainment. I control for both observed and unobserved selection by extending the model of Carneiro, Hansen and Heckman (2003). There are two channels through which college selectivity affects future labour market outcomes. The first is the wage returns to college selectivity conditional on graduate degree attainment. The second is the effect of college selectivity on the probability of graduate degree attainment and the wage returns to graduate degree attainment. The results show that the former effects dominate the latter, but both are small in magnitude.

Uncovering the Hidden Information in Insider Trading