Bank of Canada
Monthly Research Update

December 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

Baumeister, Christiane, Lutz Killian, and Thomas K. Lee, "Are There Gains from Pooling Real-Time Oil Price Forecasts?", Energy Economics, 46, p.S33-S43

Forthcoming

Hajzler, Christopher, David Fielding, and James McGee, "Distance, Language, Religion, and the Law of One Price: Evidence from Canada and Nigeria", Journal of Money, Credit and Banking

WORKING PAPERS

Ahnert, Toni and Mahmoud Elamin, "The Effect of Safe Assets on Financial Fragility in a Bank-Run Model", Cleveland Fed Working Paper 14-37

Alpanda, Sami and Sarah Zubairy, "Addressing Household Indebtedness: Monetary, Fiscal or Macroprudential Policy?", Bank of Canada Working Paper 2014-58

Bauer, Gregory, "International House Price Cycles, Monetary Policy and Risk Premiums", Bank of Canada Working Paper 2014-54

Baumeister, Christiane and James D. Hamilton, "Sign Restrictions, Structural Vector Autoregressions, and Useful Prior Information", NBER Working Paper 20741

Coiteux, Martin, Patrick Rizzetto, Lena Suchanek, and Jane Voll, "Why Do Canadian Firms Invest and Operate Abroad? Implications for Canadian Exports", Bank of Canada Discussion Paper 2014-7

Dahlhaus, Tatjana and Garima Vasishtha, "The Impact of U.S. Monetary Policy Normalization on Capital Flows to Emerging-Market Economies", Bank of Canada Working Paper 2014-53

Dunbar, Geoffrey R., "Demographics and the Demand for Currency", Bank of Canada Working Paper 2014-59

Ehrmann, Michael, "Targeting Inflation from Below - How Do Inflation Expectations Behave?", Bank of Canada Working Paper 2014-52

Jiang, George, Ingrid Lo, and Giorgio Valente, "High-Frequency Trading around Macroeconomic News Announcements: Evidence from the U.S. Treasury Market", Bank of Canada Working Paper 2014-56

Klößner, Stefan and Rodrigo Sekkel, "International Spillovers of Policy Uncertainty", Bank of Canada Working Paper 2014-57

Mueller, Michael, "Persistent Leverage in Portfolio Sorts: An Artifact of Measurement Error?" Bank of Canada Working Paper 2014-55

ABSTRACTS

Are There Gains from Pooling Real-Time Oil Price Forecasts?

The answer depends on the objective. The approach of combining five of the leading forecasting models with equal weights dominates the strategy of selecting one model and using it for all horizons up to two years. Even more accurate forecasts, however, are obtained when allowing the forecast combinations to vary across forecast horizons. While the latter approach is not always more accurate than selecting the single most accurate forecasting model by horizon, its accuracy can be shown to be much more stable over time. The MSPE of real-time pooled forecasts is between 3% and 29% lower than that of the no-change forecast and its directional accuracy as high as 73%. Our results are robust to alternative oil price measures and apply to monthly as well as quarterly forecasts. We illustrate how forecast pooling may be used to produce real-time forecasts of the real and the nominal price of oil in a format consistent with that employed by the U.S. Energy Information Administration in releasing its short-term oil price forecasts, and we compare these forecasts during key historical episodes.

Distance, Language, Religion, and the Law of One Price: Evidence from Canada and Nigeria

We examine the impact of physical distance, language and religion on Law of One Price (LOP) deviations across Interwar Canadian and modern Nigerian cities. The data comprise monthly average retail prices for narrowly defined goods collected by national statistical agencies. We find that differences in the fraction of the city population sharing a common language and religion have a significant impact on LOP deviations. The impact of language differences is consistent with a recently developed theory in which both trade costs and differences in signal-noise ratios contribute to LOP deviations.

The Effect of Safe Assets on Financial Fragility in a Bank-Run Model

Risk-averse investors induce competitive intermediaries to hold safe assets, thereby lowering the probability of a run and reducing financial fragility. We revisit Goldstein and Pauzner (2005), who obtain a unique equilibrium in the banking model of Diamond and Dybvig (1983) by introducing risky investment and noisy private signals. We show that, in the optimal demand-deposit contract subject to sequential service, banks hold safe assets to insure investors against investment risk. Consequently, fewer investors withdraw prematurely, which reduces the probability of a bank run. Safe asset holdings increase investor welfare and may increase the bank's provision of liquidity.

Addressing Household Indebtedness: Monetary, Fiscal or Macroprudential Policy?

In this paper, we build a dynamic stochastic general-equilibrium model with housing and household debt, and compare the effectiveness of monetary policy, housing-related fiscal policy, and macroprudential regulations in reducing household indebtedness. The model features long-term fixed-rate borrowing and lending across two types of households, and differentiates between the flow and the stock of household debt. We use Bayesian methods to estimate parameters related to model dynamics, while level parameters are calibrated to match key ratios in the U.S. data. We find that monetary tightening is able to reduce the stock of real mortgage debt, but leads to an increase in the household debt-toincome ratio. Among the policy tools we consider, tightening in mortgage interest deduction and regulatory loan-to-value (LTV) are the most effective and least costly in reducing household debt, followed by increasing property taxes and monetary tightening. Although mortgage interest deduction is a broader tool than regulatory LTV, and therefore potentially more costly in terms of output loss, it is effective in reducing overall mortgage debt, since its direct reach also extends to home equity loans.

International House Price Cycles, Monetary Policy and Risk Premiums

Using a panel logit framework, the paper provides an estimate of the likelihood of a house price correction in 18 OECD countries. The analysis shows that a simple measure of the degree of house price overvaluation contains a lot of information about subsequent price reversals. Corrections are typically triggered by a sharp tightening in the monetary policy interest rate relative to a baseline level in each country. Two different assessments of the current and future baseline estimates of monetary policy interest rates are provided: a simple Taylor rule and one extracted from a term structure model. A case study based on the Canadian housing market is presented.

Sign Restrictions, Structural Vector Autoregressions, and Useful Prior Information

This paper makes the following original contributions to the literature. (1) We develop a simpler analytical characterization and numerical algorithm for Bayesian inference in structural vector autoregressions that can be used for models that are overidentified, just-identified, or underidentified. (2) We analyze the asymptotic properties of Bayesian inference and show that in the underidentified case, the asymptotic posterior distribution of contemporaneous coefficients in an n-variable VAR is confined to the set of values that orthogonalize the population variance-covariance matrix of OLS residuals, with the height of the posterior proportional to the height of the prior at any point within that set. For example, in a bivariate VAR for supply and demand identified solely by sign restrictions, if the population correlation between the VAR residuals is positive, then even if one has available an infinite sample of data, any inference about the demand elasticity is coming exclusively from the prior distribution. (3) We provide analytical characterizations of the informative prior distributions for impulse-response functions that are implicit in the traditional sign-restriction approach to VARs, and note, as a special case of result (2), that the influence of these priors does not vanish asymptotically. (4) We illustrate how Bayesian inference with informative priors can be both a strict generalization and an unambiguous improvement over frequentist inference in just-identified models. (5) We propose that researchers need to explicitly acknowledge and defend the role of prior beliefs in influencing structural conclusions and illustrate how this could be done using a simple model of the U.S. labor market.

Why Do Canadian Firms Invest and Operate Abroad? Implications for Canadian Exports

Canadian foreign direct investment and sales of Canadian multinational firms' operations abroad, particularly in the manufacturing industry and in the United States, have accelerated sharply over the past decade. At the same time, although foreign demand has accelerated following the Great Recession, Canadian exports have failed to rebound as strongly as historical correlation would suggest. If part of Canadian firms' investment abroad over the past decade was intended to replace their Canadian production and exports, it could help to explain recent export weakness. This paper investigates these issues in the Canadian forest products industry and the motor vehicle parts manufacturing industry, using a case study approach. Specifically, we examine 15 large, Canadian, publicly traded firms, dominant in each of these industries, over the period 2000-13. We triangulate (i) financial statement data and (ii) public statements about decisions to invest abroad with (iii) macroeconomic data on the activity of Canadian foreign affiliates, focusing on investments in the United States and Mexico. We find that over this period, the companies in the study increasingly chose to invest abroad, leading to a shift in relative operational capacity from Canada to locations abroad. Motives behind this trend include market-seeking objectives, as well as relative cost factors and strategic asset seeking abroad. This shift in the location of production capacity may, at least for the industries and the time period studied, help to explain the weakness in Canadian merchandise exports over the past years, since these firms increasingly choose to serve foreign demand through their operations abroad, rather than exclusively through exports.

The Impact of U.S. Monetary Policy Normalization on Capital Flows to Emerging-Market Economies

The Federal Reserve's path for withdrawal of monetary stimulus and eventually increasing interest rates could have substantial repercussions for capital flows to emerging-market economies (EMEs). This paper examines the potential impact of U.S. monetary policy normalization on portfolio flows to major EMEs by using a vector autoregressive model that explicitly accounts for market expectations of future monetary policy. The "policy normalization shock" is defined as a shock that increases both the yield spread of U.S. long-term bonds and monetary policy expectations while leaving the policy rate per se unchanged. Results indicate that the impact of this shock on portfolio flows as a share of GDP is expected to be economically small. The estimated impact is closely in line with that seen during the end-May to August 2013 episode in response to a comparable rise in the yield spread of U.S. long-term bonds. However, as the events during the summer of 2013 have shown, relatively small changes in portfolio flows can be associated with significant financial turmoil in EMEs. Further, there is also a strong association between the countries that are identified by our model as being the most affected and the ones that saw greater outflows of portfolio capital over May to September 2013.

Demographics and the Demand for Currency

I use data from the Bank of Canada's Bank Note Distribution System and exploit a natural experiment offered by the timing of Easter in the Gregorian calendar to analyze the effects of demographic change for currency demand. I find that the main drivers of low-denomination bank note demand are merchants. Merchants and the youngest age group, aged 15-24, are also a significant source of demand for twenty-dollar bank notes and for the total dollar value of withdrawals. In contrast, increases in the demographic age groups 25-54 and 55 plus tend to lower bank note withdrawals. Finally, I find no evidence that employment status is related to bank note demand, but that there is a difference between the bank note demand of men aged 15-24 and women aged 15-24: increases in the share of women aged 15-24 lead to increases in bank note demand.

Targeting Inflation from Below - How Do Inflation Expectations Behave?

Inflation targeting (IT) had originally been introduced as a device to bring inflation down and stabilize it at low levels. Given the current environment of persistently weak inflation in many advanced economies, IT central banks must now bring inflation up to target. In this paper, the author tests to what extent inflation expectations are anchored in such circumstances, by comparing (i) IT and non-IT countries, and (ii) across periods when inflation is at normal levels, (persistently) high, or (persistently) weak. He finds that under low and persistently low inflation, some disanchoring can occur - inflation expectations are more dependent on lagged inflation; forecasters tend to disagree more; and inflation expectations get revised down in response to lower-than-expected inflation, but do not respond to higher-than-expected inflation. Since inflation expectations in IT countries are substantially better anchored than those in the control group, policy rates in IT countries need to react less to changes in inflation, making IT central banks considerably less likely to hit the zero lower bound.

High-Frequency Trading around Macroeconomic News Announcements: Evidence from the U.S. Treasury Market

This paper investigates high-frequency (HF) market and limit orders in the U.S. Treasury market around major macroeconomic news announcements. BrokerTec introduced i- Cross at the end of 2007 and we use this exogenous event as an instrument to analyze the impact of HF activities on liquidity and price efficiency. Our results show that HF activities have a negative effect on liquidity around economic announcements: they widen spreads during the pre-announcement period and lower depth on the order book during the post-announcement period. The negative impact on liquidity mainly derives from HF trades. Nonetheless, HF trades improve price efficiency during both the preannouncement and post-announcement periods.

International Spillovers of Policy Uncertainty

Using the Baker et al. (2013) index of policy uncertainty for six developed countries, this paper estimates spillovers of policy uncertainty. We find that spillovers account for slightly more than one-fourth of the dynamics of policy uncertainty in these countries, with this share rising to one-half during the financial crisis. The United States and United Kingdom are responsible for a large fraction of the spillovers since the financial crisis, while Canada and the remaining countries are all net receivers of policy uncertainty shocks during and after this period.

Persistent Leverage in Portfolio Sorts: An Artifact of Measurement Error?

Studies such as Lemmon, Roberts and Zender (2008) demonstrate how stable firms' capital structures are over time, and raise the question of whether new theories of capital structure are needed to explain these phenomena. In this paper, I show that trade-off theory-based empirical proxies that are observed with error offer an alternative explanation for the persistence in portfolio-leverage levels. Measurement error noise equal to 80% of the cross-sectional variation in the market to book ratio, coupled with slight mismeasurement of other factors, matches simulated data moments to empirical moments. This suggests that unobserved investment opportunities play an important role in explaining leverage ratios.