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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

Baumeister, Christiane and Lutz Kilian “Forecasting the Real Price of Oil in a Changing World: A Forecast Combination Approach”, Journal of Business & Economic Statistics, Volume 33, Issue 3, July 2015, Pages 338-351

Cruz Lopez, Jorge Abraham, “Mind the Gap: Undercollaterteralization in the Global and Canadian OTCD Markets”, Analyzing the Economics of Financial Market Infrastructures, Chapter 15, Pages 304-316

Ehrmann, Micheal “Targeting Inflation from Below: How Do Inflation Expectations Behave?” International Journal of Central Banking, Volume 11, September 2015, Pages 213-249

Granziera, Eleonora, and Sharon Kozicki “House price dynamics: Fundamentals and expectations”, Journal of Economics Dynamics and Control, Volume 60, November 2015, Pages 152-165

Jalles, J. Tovar, Iskander Karibzhanov, and Prakash Loungani “Cross-country evidence on the quality of private sector fiscal forecasts”, Journal of Macroeconomics, Volume 45, September 2015, Pages 186-201

Perez-Saiz, Hector. “Building new plants or entering by acquisition? Firm heterogeneity and entry barriers in the U.S. cement industry”, The RAND Journal of Economics, Volume 46, Issue 3, Fall 2015, Pages 625-649

Forthcoming

Amirault, David, Daniel de Munnik, and Sarah Miller “What Drags and Drives Mobility: Explaining Canada’s Aggregate Migration Patterns” Canadian Journal of Economics

Huynh, Kim P., David T. Jacho-Chavez, Oleksiy Kryvtsov, Oleksandr Shepotylo, and Volodymyr Vakhitov “The Evolution of Firm-Level Distributions for Ukrainian Manufacturing Firms”, Journal of Comparative Economics

Oleksiy, Kryvtsov “Is There a Quality Bias in the Canadian CPI? Evidence from Micro Data” Canadian Journal of Economics

WORKING PAPERS

Aizenman, Joshua, Martin Bijsterbosch, Matteo Falagiarda, and Gurnain Pasricha, "Domestic and multilateral effects of capital controls in emerging markets", European Central Bank Working Paper No 1844

Byun, Sungje, and Soojin Jo, "Heterogeneity in the Dynamic Effects of Uncertainty on Investment", Bank of Canada Working Paper 2015-34

Champagne, Julien, "The Carrot and the Stick: The Business Cycle Implications of Incentive Pay in the Labor Search Model", Bank of Canada Working Paper 2015-35

Chapman, James, Johnathan Chiu, Sajjad Jafri, and Hector P. Saiz "Public Policy Objectives and the Next Generation of CPA Systems: An Analytical Framework", Bank of Canada Discussion Paper 2015-6

Chapman, James, and H. Evren Dumar, "Shock Transmission Through International Banks: Canada" Bank of Canada Technical Report No. 105

Serena Gerralda, Jose Maria, and Garima Vasishtha, "What drives bank-intermediated trade finance? Evidence from cross-country analysis", Banco de Espana Working Paper N.º 1524

Kryvtsov, Oleksiy, Miguel Molico, and Ben Tomlin, "On the Nexus of Monetary Policy and Financial Stability: Recent Developments and Research", Bank of Canada Discussion Paper 2015-7

ABSTRACTS

Forecasting the Real Price of Oil in a Changing World: A Forecast Combination Approach

The U.S. Energy Information Administration (EIA) regularly publishes monthly and quarterly forecasts of the price of crude oil for horizons up to 2 years, which are widely used by practitioners. Traditionally, such out-of-sample forecasts have been largely judgmental, making them difficult to replicate and justify. An alternative is the use of real-time econometric oil price forecasting models. We investigate the merits of constructing combinations of six such models. Forecast combinations have received little attention in the oil price forecasting literature to date. We demonstrate that over the last 20 years suitably constructed real-time forecast combinations would have been systematically more accurate than the no-change forecast at horizons up to 6 quarters or 18 months. The MSPE reductions may be as high as 12% and directional accuracy as high as 72%. The gains in accuracy are robust over time. In contrast, the EIA oil price forecasts not only tend to be less accurate than no-change forecasts, but are much less accurate than our preferred forecast combination. Moreover, including EIA forecasts in the forecast combination systematically lowers the accuracy of the combination forecast. We conclude that suitably constructed forecast combinations should replace traditional judgmental forecasts of the price of oil.

Mind the Gap: Undercollaterteralization in the Global and Canadian OTCD Markets

We provide estimates of the collateral gap in the global and Canadian OTCD markets. Using the latest available data as of December 31 2011, it is estimated that current exposures after netting are $3.9T globally and $71B in Canada. The estimated amount of available collateral after correcting for rehypothecation in each market is $767B and $48B, respectively. Thence, the current gap in variation margins stands at $3.1T globally and at $23B in Canada. The initial margin that would be required to centrally clear OTCD is estimated at $4T globally and $104B in Canada. The rate of collateralization has increased globally, but specially in Canada. In 2001, 92% of global and 72% of Canadian current exposures were undercollateralized; currently, the figures are 80% for global and 30% for Canadian current exposures. The high level of collateralization and the lack of re-hypothecation could make the Canadian market more resilient to systemic shocks. Further, it is likely that the upcoming regulatory reforms will have a more subtle impact on Canadian banks than on banks elsewhere.

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. This paper tests to what extent inflation expectations are anchored in such circumstances, by comparing across periods when inflation is around target, (persistently) high, or (persistently) weak. It finds that under persistently low inflation, inflation expectations are not as well anchored as when inflation is around target: 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. This suggests that central banks should expect inflation expectations to behave differently than was the case previously, when inflation was often remarkably close to target in many advanced economies.

House price dynamics: Fundamentals and expectations

We investigate whether expectations that are not fully rational have the potential to explain the evolution of house prices and the price-to-rent ratio in the United States. First, a stylized asset-pricing model solved under rational expectations is used to derive a fundamental value for house prices and the price–rent ratio. Although the model can explain the sample average of the price–rent ratio, it does not generate the large and persistent fluctuations observed in the data. Then, we consider a rational bubble solution, an extrapolative expectations solution and a near rational bubble solution. In this last solution agents extrapolate the future from the latest realizations and the degree of extrapolation is stronger in good times than in bad times, generating waves of over-optimism. We show that under this solution the model not only is able to match key moments of the data but can also replicate the run up in the U.S. house prices observed over the 2000–2006 period and the subsequent sharp downturn.

Cross-country evidence on the quality of private sector fiscal forecasts

This paper provides evidence of the quality of private sector forecasts of the budget balance between 1993 and 2009 for a sample of 29 countries, grouped into advanced and emerging countries. We find large differences across the two groups: forecasts for advanced economies are much more accurate than for emerging economies and much less subject to a bias towards optimism (i.e. they are less likely to forecast a bigger budget balance than the realization). Forecasts for both groups, however, exhibit a tendency toward forecast smoothing: forecasts are revised slowly so that revisions to forecasts can be systematically predicted based on past revisions. This tendency proves costly around turning points in the economy when the budget balance moves sharply but the corresponding forecasts only adjust very slowly to the reality of the situation.

Building new plants or entering by acquisition? Firm heterogeneity and entry barriers in the U.S. cement industry

I estimate a model of entry for the cement industry that considers two options of expansion: building a plant or acquiring an incumbent. The model takes into account that there is a transfer of the buyer firm-level characteristics to the acquired plants, which affects profits from the acquisition. Estimates show that a less-permissive Reagan–Bush administration's merger policy would decrease the number of acquired plants by 71%, greenfield entry would increase by 9.2% and consumer surplus would decrease by 23.5%. Results suggest that regulators should be concerned about policies that negatively affect the efficient reallocation of assets between incumbents and entrants.

What Drags and Drives Mobility: Explaining Canada's Aggregate Migration Patterns

Understanding the factors that determine the migration of labour between regions is crucial for assessing the response of the economy to macroeconomic shocks and identifying policies that will encourage an efficient reallocation of labour. Using a gravity model and census data for 69 economic regions, this article examines the determinants of migration within Canada from 1991 to 2006. Our results suggest that migration tends to increase with differences in labour market performance. We also find that provincial borders have the strongest impact on migration involving low-populated regions and that distance is most important across provincial borders.

The Evolution of Firm-Level Distributions for Ukrainian Manufacturing Firms

We document rich variation across observed firms' characteristics, and the accompanying macroeconomic volatility, often related to political turmoil for Ukrainian manufacturing firms. We use a unique annual firm-level data for the period from 2001 to 2009 compiled from the Derzhkomstat. To understand the evolution of distributions we utilize functional principal component analysis while accounting for the effects associated with firms' region, industry, trade status, and firm turnover. The overall improvements in firm productivity in Ukraine's manufacturing in 2001-2009 vary substantially by industry, trade status and with firm turnover, while regional effects are less important.

Is There a Quality Bias in the Canadian CPI? Evidence from Micro Data

Rising consumer prices may reflect shifts by consumers to new higher-priced products, mostly for durable and semi-durable goods. I apply Bils' (2009) methodology to newly available Canadian consumer price data for non-shelter goods and services to estimate how price increases can be divided between quality growth and price inflation. I find that less than one-third of observed price increases during model changeovers should be attributed to quality growth. This implies overall price inflation close to inflation measured by the official index. I conclude that, according to Bils' methodology, the quality bias is not an important source of potential mismeasurement of CPI inflation in Canada.

Domestic and multilateral effects of capital controls in emerging markets

Using a novel dataset on changes in capital controls and currency-based prudential measures in 17 major emerging market economies (EMEs) over the period 2001-2011, this paper provides new evidence on domestic and multilateral (or spillover) effects of capital controls before and after the global financial crisis. Our results, based on panel VARs, suggest that capital control actions do not allow countries to avoid the trade-offs of the monetary policy trilemma. Where they have a desired impact on the trilemma variables – net capital inflows, monetary policy autonomy and the exchange rate – the size of that impact is generally small. While we find some evidence of effectiveness before the global financial crisis, the usefulness of these measures weakened in the post-crisis environment of abundant global liquidity and relatively strong economic growth in EMEs. Our results also show that capital control policies can have unintended consequences, as resident outflows offset the impact of capital control actions on gross inflows (or vice versa). These findings highlight the importance of the macroeconomic context and of the increasing role of resident flows in understanding the effectiveness of capital inflow management. Using panel near-VARs, we find significant spillovers of capital control actions in BRICS (Brazil, Russia, India, China and South Africa) to other EMEs during the 2000s. Spillover effects were more important in the aftermath of the global financial crisis than before the crisis, and arose from inflow tightening actions, rather than outflow easing measures. The channels through which these policies spilled over to other countries were exchange rates as well as capital flows (especially cross-border bank lending). Spillovers seem to be more prevalent in Latin America than in Asia, reflecting the greater role of cross-border banking and more open capital accounts in the former countries. These results are robust to various specifications of our models.

Heterogeneity in the Dynamic Effects of Uncertainty on Investment

How does aggregate profit uncertainty influence investment activity at the firm level? We propose a parsimonious adaptation of a factor-autoregressive conditional heteroscedasticity model to exploit information in a subindustry sales panel for an efficient and tractable estimation of aggregate volatility. The resulting uncertainty measure is then included in an investment forecasting model interacted with firm-specific coefficients. We find that higher profit uncertainty induces firms to lower capital expenditure on average, yet to a considerably different degree: for example, both small and large firms are expected to reduce investment much more than medium-sized firms. This highlights significant and substantial heterogeneity in the uncertainty transmission mechanism.

The Carrot and the Stick: The Business Cycle Implications of Incentive Pay in the Labor Search Model

This paper considers a real business cycle model with labor search frictions where two types of incentive pay are explicitly introduced following the insights from the micro literature on performance pay (e.g. Lazear, 1986). While in both schemes workers and firms negotiate ahead of time-t information, the object of the negotiation is different. The first scheme is called an “efficiency wage,” since it follows closely the intuition of the shirking model by Shapiro and Stiglitz (1984), while the second is called a “performancepay” wage, since the negotiation occurs over a wage schedule that links the worker’s wage to the worker’s output. The key feature here is that the worker can then adjust the level of effort (i.e. performance) provided in any period. I simulate a shift toward performance-pay contracts as experienced by the U.S. labor market to assess whether it can account simultaneously for two documented business cycle phenomena: the increase in relative wage volatility and the Great Moderation. While the model yields higher wage volatility when performance pay is more pervasive in the economy, it produces higher volatility of output and higher procyclicality of wages, two results counterfactual to what the U.S. economy has experienced during the Great Moderation. These results pose a challenge to the idea that higher wage flexibility through an increase in performance-pay schemes can account for business cycle statistics observed over the past 30 years.

Public Policy Objectives and the Next Generation of CPA Systems: An Analytical Framework

The payments landscape in Canada is rapidly changing and will continue to evolve, fuelled by strong and persistent drivers. In Canada, the Canadian Payments Association (CPA) is on a path to modernize Canada's core payment systems. This paper contributes to the discussion in three ways. First, it translates the government's public policy objectives (PPOs) for the broad payments ecosystem into desired outcomes for CPA payment systems. Second, it develops a taxonomy for clearly describing the defining attributes of a payment system. These defining attributes are access, functionality, interoperability, timeliness of payments and risk management. Finally, we develop an analytic framework to consider the trade-offs of the various attributes to achieve the PPOs for the Canadian payments ecosystem. A key output of these contributions includes a possibilities frontier that represents the set of systems with designs that best achieve the PPOs, subject to regulatory and technological constraints. Based on the results of this exercise, we recommend the most critical issues for the CPA to investigate as it considers the modernization of its systems.

Shock Transmission Through International Banks: Canada

In this paper, we investigate how liquidity conditions in Canada may affect domestic and/or foreign lending of globally active banks and whether this transmission is influenced by individual bank characteristics. We find that Canadian banks expanded their foreign lending during the recent financial crisis, often through acquisitions of foreign banks. We also find evidence that internal capital markets play a role in the lending activities of globally active Canadian banks during times of heightened liquidity risk.

What drives bank-intermediated trade finance? Evidence from cross-country analysis

Empirical work on the underlying causes of the recent dislocations in bank-intermediated trade finance has been limited by the scant availability of hard data. This paper aims to analyse the key determinants of bank-intermediated trade finance using a novel dataset covering ten banking jurisdictions. It focuses on the role of global factors as well as country-specific characteristics in driving trade finance. Results indicate that country specific variables, such as growth in trade flows and funds available for domestic banks, as well as global financial conditions and global import growth, are important determinants of trade finance. These results are robust to different model specifications. Further, we do not find that trade finance is more sensitive to global financial conditions than other loans to non-bank entities.

On the Nexus of Monetary Policy and Financial Stability: Recent Developments and Research

Because financial and macroeconomic conditions are tightly interconnected, financial stability considerations are an important element of any monetary policy framework. Yet, the circumstances under which it would be appropriate for the Bank to use monetary policy to lean against financial risks need to be more fully specified (Côté 2014). The extent to which financial stability concerns should be taken into account by monetary policy will be a priority topic of research at the Bank for the renewal of the inflation-control target agreement in 2016. This paper reviews four considerations of interest, taking stock of key domestic and international developments and knowledge gained over the past few years: (i) Canada and other countries have made significant progress in the implementation of micro- and macroprudential regulatory reforms, and limited existing research finds that most of these policies were effective in reducing the potential need for leaning by monetary policy; (ii) the effectiveness of the monetary policy transmission mechanism depends on the state of the financial system, implying that financial system conditions need to be taken into account by monetary policy; (iii) although exceptionally low interest rates and other forms of monetary stimulus are sometimes needed to support growth and achieve inflation-target mandates, they may lead to excessive risk-taking activities and therefore contribute to the buildup of financial imbalances; and (iv) coordination of monetary and macroprudential policies for dealing with imbalances may, in some circumstances, be beneficial. The paper concludes by identifying future areas of research to further clarify the role of monetary policy in addressing financial stability risks.