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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

Fung, Loretta, and Ben Tomlin, "Exchange Rate Movements and the Distribution of Productivity", Review of International Economics, Volume 23, Issue 4, September 2015, Pages 782-809

Forthcoming

Cao, Shutao, Wei Dong, and Ben Tomlin, "Pricing-to-Market, Currency Invoicing and Exchange Rate Pass-Through to Producer Prices", Journal of International Money and Finance

Christoffersen, Peter, Bruno Feunou, and Jeon Yoontae, "Option Valuation with Observable Volatility and Jump Dynamics", Journal of Banking & Finance

Huynh, Kim P. and Robert J. Petrunia, "Post-Entry Struggle for Life and Pre-Exit Shadow of Death from a Financial Perspective", International Journal of the Economics of Business

WORKING PAPERS

Ahnert, Toni, and Enrico Perotti, "Cheap But Flighty: How Global Imbalances Create Financial Fragility", Bank of Canada Working Paper 2015-33

Anand, Kartik, Céline Gauthier, and Moez Souissi, "Quantifying Contagion Risk in Funding Markets: A Model-Based Stress-Testing Approach", Bank of Canada Working Paper 2015-32

Barnett, Russell, and Karyne B. Charbonneau, "Decomposing Movements in U.S. Non-Energy Import Market Shares", Bank of Discussion Paper 2015-5

Devereux, Michael, Wei Dong, and Ben Tomlin, "Exchange Rate Pass-Through, Currency of Invoicing and Market Share", Bank of Canada Working Paper 2015-31

ABSTRACTS

Exchange Rate Movements and the Distribution of Productivity

This paper examines how movements in the real exchange rate affect the distribution of labor productivity within industries. Appreciations of the local currency expose domestic plants to more competition as export opportunities shrink and import competition intensifies. As a result, smaller less productive plants are forced from the market, which truncates the lower end of the productivity distribution, and surviving plants face a reduction in physical sales (unless they adjust their mark-up), which, in the presence of scale economies, can lower productivity. Using quantile regression, we find that movements in the exchange rate do, indeed, have distributional effects on productivity.

Pricing-to-Market, Currency Invoicing and Exchange Rate Pass-Through to Producer Prices

In this paper, we examine producer prices to shed light on a number of outstanding issues in the understanding of price adjustment in the face of fluctuating exchange rates. First, we provide results that link two closely related literatures on firm characteristics and exchange rate pass-through, and currency of invoicing and pass-through. We show that there is significant within- and across-industry heterogeneity in the currency of invoice of exports of Canadian goods to the U.S. and, further, in the degree of pass-through to producer prices. Next, we exploit the fact that we observe firms that sell the same good to both the domestic and export markets, often in different currencies, to difference out the common marginal cost component of the prices. This allows us to relate markups to exchange rate movements and we find evidence that pricing-to-market is most prominent when firms are setting export prices in U.S. dollars.

Option Valuation with Observable Volatility and Jump Dynamics

Under very general conditions, the total quadratic variation of a jump-diffusion process can be decomposed into diffusive volatility and squared jump variation. We use this result to develop a new option valuation model in which the underlying asset price exhibits volatility and jump intensity dynamics. The volatility and jump intensity dynamics in the model are directly driven by model-free empirical measures of diffusive volatility and jump variation. Because the empirical measures are observed in discrete intervals, our option valuation model is cast in discrete time, allowing for straightforward filtering and estimation of the model. Our model belongs to the affine class enabling us to derive the conditional characteristic function so that option values can be computed rapidly without simulation. When estimated on S&P500 index options and returns the new model performs well compared with standard benchmarks

Post-Entry Struggle for Life and Pre-Exit Shadow of Death from a Financial Perspective

The success or failure of small, young, and private firms depends highly on the evolution of their financial position. This paper considers the post-entry/pre-exit adjustment process of firms with focus on financial (debt-to-asset ratio) and labour productivity dynamics. Empirically examining financial relationships has been difficult, due to a lack of data on the small, young, and private firms. We find that the post-entry struggle for life results in highly productive entrants reducing their leverage. Pre-exit dynamics see firm growth and relative firm size fall, with rising leverage. Increasing leverage hints at a shadow of death. Selection and survivor effects contribute to post-entry dynamics, while turnover and transition effects contribute to pre-exit dynamics.

Cheap But Flighty: How Global Imbalances Create Financial Fragility

We analyze how a wealth shift to emerging countries may lead to instability in developed countries. Investors exposed to expropriation risk are willing to pay a safety premium to invest in countries with good property rights. Domestic intermediaries compete for such cheap funding by carving out safe claims, which requires demandable debt. While foreign inflows allow countries to expand their domestic credit, risk-intolerant foreign investors withdraw even under minimal uncertainty. We show that more foreign funding causes larger and more frequent runs. Beyond some scale, even risk-tolerant domestic investors are induced to withdraw to avoid dilution. As excess liquidation causes social losses, a domestic planner may seek prudential measures on the scale of foreign inflows.

Quantifying Contagion Risk in Funding Markets: A Model-Based Stress-Testing Approach

We propose a tractable, model-based stress-testing framework where the solvency risks, funding liquidity risks and market risks of banks are intertwined. We highlight how coordination failure between a bank's creditors and adverse selection in the secondary market for the bank's assets interact, leading to a vicious cycle that can drive otherwise solvent banks to illiquidity. Investors' pessimism over the quality of a bank's assets reduces the bank's recourse to liquidity, which exacerbates the incidence of runs by creditors. This, in turn, makes investors more pessimistic, driving down other banks' recourse to liquidity. We illustrate these dynamics in a calibrated stress-testing exercise.

Decomposing Movements in U.S. Non-Energy Import Market Shares

Country market shares of U.S. non-energy imports have changed considerably since 2002, with varying volatility across three subperiods: pre-crisis (2002–07), crisis (2007–09) and post-crisis (2009–14). In this paper, we analyze market shares for four main trading partners of the United States (Canada, Mexico, China and Japan). We use shift-share analysis to decompose movements in the aggregate market shares into those related to actual shifts in product-specific market shares, versus shifts in the composition of U.S. import demand and the interaction between these two effects. Our analysis shows that separating these effects is important, since shifts in product-specific market shares explain varying amounts of movements in the overall market shares across countries and between time periods. Specifically, we find that two-thirds of Canada's decline in U.S. market share is due to shifts in product-specific market shares and that these losses were relatively stable across subperiods. In contrast, losses associated with a shift in the composition of U.S. import demand were most important during the crisis and have in fact supported Canada's market share since 2009. We also find that almost three-quarters of Canada's total loss in market share was concentrated in two sectors: (i) motor vehicles and parts, and (ii) forestry products and building and packaging materials. Japan's loss in U.S. market share was very similar to Canada's over this period. In contrast, China and Mexico both gained market share between 2002 and 2014. China gained mostly in product-specific market share, while Mexico benefited from favourable shifts in U.S. import demand.

Exchange Rate Pass-Through, Currency of Invoicing and Market Share

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.