

Bank of Canada Monthly Research Update

February 2013

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

Pomeranets, Anna, “Securities Transaction Taxes: Literature and Key Issues”, *Encyclopedia of Finance*, 2nd edition.

Forthcoming

Allen, Jason, Robert Clark, and Jean-Francois Houde, “Discounting in Mortgage Markets”, *Journal of Industrial Organization*

Alquist, Ron, and Olivier Gervais, “The Role of Financial Speculation in Driving the Price of Crude Oil”, *Energy Journal*

Baumeister, Christiane, and Gert Peersman, “Time-Varying Effects of Oil Supply Shocks on the U.S. Economy”, *American Economic Journal: Macroeconomics*

Brunetti, Celso, Bahattin Buyuksahin, and Jeffrey H. Harris, “Herding and Speculation in the Crude Oil Market”, *Energy Journal*

Brunetti, Celso, Bahattin Buyuksahin, Michel A. Robe, and Kirsten R. Soneson, “OPEC 'Fair Price' Pronouncements and the Market Price of Crude Oil”, *Energy Journal*

Buyuksahin, Bahattin, Thomas K. Lee, James T. Moser, and Michel A. Robe, “Physical Markets, Paper Markets and the WTI-Brent Spread”, *Energy Journal*

Li, Fuchun, “Identifying Asymmetric Comovements of International Stock Market Returns”, *Journal of Financial Econometrics*

Rossi, Barbara, and Tatevik Sekhposyan, “Conditional Predictive Density Evaluation in the Presence of Instabilities”, *Journal of Econometrics*

WORKING PAPERS

Pinheiro, Tiago, Francisco Rivadeneyra, and Marc Teignier, “Financial Development and the Volatility of Income”, Bank of Canada Working Paper 2013-4

ABSTRACTS

Discounting in Mortgage Markets

This paper studies discounting in mortgage markets. Using transaction-level data on Canadian mortgages, we document that over time there's been an increase in the average discount, along

with substantial dispersion. The standard explanation for dispersion in credit markets is that lenders engage in risk-based pricing. Our setting is unique since contracts are guaranteed by government-backed insurance, meaning risk cannot be the main driver of dispersion. We find that mortgage rates depend on individual, contractual, and shopping market characteristics. There is also an important amount of unobserved heterogeneity in rates, which could be attributed to search costs.

The Role of Financial Speculation in Driving the Price of Crude Oil

As financial firms have increased their positions in the oil futures market during the past ten years, oil prices have increased dramatically as well. The coincidence of these two events has led some observers to argue that financial speculation caused the oil-price increases. Yet several arguments cast doubt on the validity of this claim. For example, although the quantity of oil implied by the number of open futures contracts is much larger than U.S. daily oil consumption, comparing these two statistics is misleading because not all paper oil is immediately deliverable. In addition, changes in financial firms' positions do not predict oil-price changes, but oil-price changes predict changes in positions. Other explanations for the oil-price increases include macroeconomic fundamentals such as increased demand from emerging Asia. Of these explanations, the most consistent with the facts relates the oil-price increases to a series of positive demand shocks emanating from emerging Asia.

Time-Varying Effects of Oil Supply Shocks on the U.S. Economy

We use vector autoregressions with drifting coefficients and stochastic volatility to investigate how the dynamic effects of oil supply shocks on the U.S. economy have changed over time. We find a substantial decline in the short-run price elasticity of oil demand since the mid-eighties. This finding together with time-varying dynamics helps explain why an oil production shortfall of the same magnitude is associated with a stronger response of oil prices and more severe macroeconomic consequences over time, while an oil price increase of the same magnitude is associated with a smaller decline in oil production and smaller losses in U.S. output in more recent years. We also show that oil supply shocks more recently account for a smaller fraction of the variability of the real price of oil, implying a greater role for oil demand shocks. Notwithstanding this

time variation, the overall cumulative effect of oil supply disruptions on the U.S. economy has been modest. Oil supply shocks contributed to some extent to the 1991 recession and slowed the economic boom of 1999-2000, but they do not explain other U.S. recessions nor do they help explain the "Great Inflation" of the 1970s and early 1980s.

Herding and Speculation in the Crude Oil Market

We examine whether herding among speculators in U.S. crude oil futures markets affects market prices and volatility. Using detailed data on the positions of hedge funds and swap dealers from 2005–2009, we find little evidence that herding destabilizes the crude oil futures market. To the contrary, herding among speculative traders is negatively correlated with contemporaneous volatility and does not lead next-day volatility. Our impulse-response analysis shows that market regulators should monitor herding since a shock to herding among all groups may lead to price changes, and, in the case of hedge funds, may lead to increased volatility. Interestingly, however, increased swap dealer herding actually dampens crude oil price volatility.

OPEC 'Fair Price' Pronouncements and the Market Price of Crude Oil

OPEC producers, individually or collectively, often make statements regarding the "fair price" of crude oil. In some cases, the officials commenting are merely affirming the market price prevailing at the time. In many cases, however, we document that they explicitly disagree with contemporaneous oil futures prices. A natural question is whether these "fair price" pronouncements contain information not already reflected in the market price of crude oil. To find the answer, we collect "fair price" statements made from 2000 through 2010 by officials from OPEC or OPEC member countries. Visually, the "fair price" series looks like a sampling discretely drawn (with a lag) from the daily futures market price series. Formally, we use two primary methodologies to establish that "fair price" pronouncements have little influence on the market price of crude oil and supply little or no new news to oil futures market participants.

Physical Markets, Paper Markets and the WTI-Brent Spread

We document that, starting in the Fall of 2008, the benchmark West Texas Intermediate (WTI) crude oil has periodically traded at

unheard-of discounts to the corresponding Brent benchmark. We further document that this discount is not reflected in spreads between Brent and other benchmarks that are directly comparable to WTI. Drawing on extant models linking oil inventory conditions to the futures term structure, we test empirically several conjectures about how calendar and commodity spreads (nearby vs. first-deferred WTI; nearby Brent vs. WTI) should move over time and be related to storage conditions at Cushing. We then investigate whether, after controlling for macroeconomic and physical market fundamentals, spread behavior is partly predicted by the aggregate oil futures positions of commodity index traders.

Identifying Asymmetric Comovements of International Stock Market Returns

Based on a new approach for measuring the comovements between stock market returns, we provide a nonparametric test for asymmetric comovements in the sense that stock market downturns will lead to stronger comovements than market upturns. The test is used to detect whether asymmetric comovements exist in international stock markets. We find the following empirical facts. First, asymmetric comovements exist between the United States (U.S.) stock market and the stock markets for Canada, France, Germany, and the United Kingdom (U.K.), but the data are unable to reject the null hypothesis of the symmetric comovements between the U.S. and Japanese stock markets. Second, either a larger negative drop or a positive increase in stock prices leads to stronger comovements of stock market returns, indicating that comovements in the data are different from comovements implied by a bivariate symmetric distribution, which implies that comovements tend to zero as the market returns become more positive or more negative.

Securities Transaction Taxes: Literature and Key Issues

The main scope of this chapter is to review the literature and key issues associated with securities transaction taxes (STTs). Despite the use of STTs around the globe, the theoretical and empirical literature on the impact an STT has on liquidity and volatility is mixed. If an STT is not appropriately designed, it could interfere with the smooth functioning of financial markets, lead to informational inefficiency, arbitrage, tax evasion and double taxation. Effective implementation of STTs therefore requires cross-jurisdictional coordination, controls on cross-border transactions and carefully constructed enforcement.

Conditional Predictive Density Evaluation in the Presence of Instabilities

We propose new methods for evaluating predictive densities. The methods include Kolmogorov-Smirnov and Cramér-von Mises-type tests for the correct specification of predictive densities robust to dynamic mis-specification. The novelty is that the tests can detect mis-specification in the predictive densities even if it appears only over a fraction of the sample, due to the presence of instabilities. Our results indicate that our tests are well sized and have good power in detecting mis-specification in predictive densities, even when it is time-varying. An application to density forecasts of the Survey of Professional Forecasters demonstrates the usefulness of the proposed methodologies.

Financial Development and the Volatility of Income

This paper presents a general equilibrium model with endogenous collateral constraints to study the relationship between financial development and business cycle fluctuations in a cross-section of economies with different sizes of their financial sector. The financial sector can amplify or dampen the volatility of income by increasing or reducing the business cycle effects of technological shocks. We find a non-monotonic relationship between the volatility of income and financial development measured by total borrowing and lending. A more developed financial system unambiguously increases the income level however the volatility can rise or fall depending on the degree of financial development.