

Bank of Canada Monthly Research Update

January 2020

This monthly newsletter features the latest research publications by Bank of Canada economists. The report includes papers appearing in external publications and staff working papers published on the Bank of Canada's website.

PUBLISHED PAPERS

Forthcoming

Goldman, Elena & Shen, Xiangjin, “[Procyclicality Mitigation for Initial Margin Models with Asymmetric Volatility](#)”, *Journal of Risk*

STAFF WORKING PAPERS

Fontaine, Jean-Sébastien & Walton, Adrian, “[Contagion in Dealer Networks](#)”, Bank of Canada Staff Working Paper 2020-1

Arifovic, Jasmina & Grimaud, Alex & Salle, Isabelle & Vermandel, Gauthier, “[Social Learning and Monetary Policy at the Effective Lower Bound](#)”, Bank of Canada Staff Working Paper 2020-2

Duprey, Thibaut & Ueberfeldt, Alexander, “[Managing GDP Tail Risk](#)”, Bank of Canada Staff Working Paper 2020-3

ABSTRACTS

Procyclicality Mitigation for Initial Margin Models with Asymmetric Volatility

We explore properties of asymmetric generalized autoregressive conditional heteroscedasticity (GARCH) models in the threshold GARCH (GTARCH) family and propose a more general Spline-GTARCH model, which captures high-frequency return volatility, low-frequency macroeconomic volatility as well as an asymmetric response to past negative news in both autoregressive conditional heteroscedasticity (ARCH) and GARCH terms. Based on maximum likelihood estimation of S&P 500 returns, S&P/TSX returns and Monte Carlo numerical example, we find that the proposed more general asymmetric volatility model has better fit, higher persistence of negative news, higher degree of risk aversion and significant effects of macroeconomic variables on the low frequency volatility component. We then apply a variety of volatility models in setting initial margin requirements for a central clearing counterparty (CCP). Finally, we show how to mitigate procyclicality of initial margins using a three-regime threshold autoregressive model.

Contagion in Dealer Networks

Dealer networks provide essential intermediation services in over-the-counter markets. We document the response of dealer networks to the arrival of new public information. We find that after public news releases, dealer networks become more complex and channel larger flows of securities between buyers and sellers. These effects are concentrated in bonds that were more actively traded and had more-complex dealer networks. One natural interpretation is that dealer networks become more complex after the news releases to accommodate shifts of intermediation demand. For these bonds, following the news releases, we also document more frequent and larger contagion of settlement fails over the network. The evidence points to a trade-off. Settlement fails allow for contagion of counterparty risk in dealer networks; yet, allowing for fails provides dealers greater flexibility to accommodate shifts in demand for intermediation.

Social Learning and Monetary Policy at the Effective Lower Bound

The first contribution of this paper is to develop a model that jointly accounts for the missing disinflation in the wake of the Great Recession and the subsequently observed inflation-less recovery. The key mechanism works through heterogeneous expectations that may durably lose their anchorage to the central bank (CB)'s target and coordinate on particularly persistent below-target paths. We jointly estimate the structural and the learning parameters of the model by matching moments from both macroeconomic and Survey of Professional Forecasters data. The welfare cost associated with those dynamics may be reduced if the CB communicates to the agents its target or its own inflation forecasts, as communication helps anchor expectations at the target. However, the CB may lose its credibility whenever its announcements become decoupled from actual inflation, for instance in the face of large and unexpected shocks.

Managing GDP Tail Risk

We propose a novel framework to analyze how policy-makers can manage risks to the median projection and risks specific to the tail of gross domestic product (GDP) growth. By combining a quantile regression of GDP growth with a vector autoregression, we show that monetary and macroprudential policy shocks can reduce credit growth and thus GDP tail risk. So policymakers concerned about GDP tail risk would choose a tighter policy stance at the expense of macroeconomic stability. Using Canadian data, we show how our framework can add tail event information to projection models that ignore them and give policy-makers a tool to communicate the trade-offs they face.

UPCOMING EVENTS

Arvind Krishnamurthy (Stanford University, Graduate School of Business)

Organizer: Sermin Gungor (FMD)

Date: 5 March 2020

Raphael Schoenle (Brandeis University, Department of Economics)

Organizer: Daniela Hauser (CEA)

Date: 6 March 2020

Karen Kopecky (Federal Reserve Bank of Atlanta)

Organizer: Youngmin Park (CEA)

Date: 13 March 2020

Tarek Hassan (Boston University, Department of Economics)

Organizer: Edouard Djoutem (INT)

Date: 20 March 2020

Martin Uribe (Columbia University, Department of Economics)

Organizer: Julien Bengui (INT)

Date: 27 March 2020

Todd Clark (Federal Reserve Bank of Cleveland)

Organizer: Luis Uzeda (CEA)

Date: 3 April 2020

Walker Ray (Federal Reserve Bank of San Francisco and the London School of Economics)

Organizer: Gonzalo Morales (FBD)

Date: 5 April 2020

Haoxiang Zhu (Massachusetts Institute of Technology, Sloan School of Management)

Organizer: Alper Odabasioglu (FSD)

Date: 16 April 2020

JEDC Conference on The Economics of Digital Currencies (at Rutgers University)

Organizer: Jonathan Chiu (FBD)

Date: 17 April 2020

Todd Schoellman (Federal Reserve Bank of Minneapolis)
Organizer: Youngmin Park (CEA)
Date: 17 April 2020

Andrew Karolyi (Cornell University, SC Johnson College of Business)
Organizer: Jon Witmer (FMD)
Date: 23 April 2020

Debt Management Modelling Workshop
Organizers: Narayan Bulusu & Antonio Diez de los Rios (FBD)
Date: 24 April 2020

Matthias Kehrig (Duke University, Department of Economics)
Organizer: Dmitry Matveev (CEA)
Date: 24 April 2020

Rubio Ramirez (Emory University, Department of Economics)
Organizer: Ruben Hipp (FSD)
Date: 29 April 2020

Hanno Lustig (Stanford University, Graduate School of Business)
Organizer: Guihai Zhao (FMD)
Date: 30 April 2020

Nicolas Crouzet (Northwestern University, Kellogg School of
Management)
Organizer: Romanos Priftis (CEA)
Date: 1 May 2020

Mad(ison) Money Meeting
Organizers: Yu Zhu & Jonathan Chiu (FBD)
Date: 7 May 2020

Andra Ghent (University of North Carolina at Chapel Hill, Kenan-
Flagler Business School)
Organizer: Soojin Jo (FSD)
Date: 7 May 2020

Edouard Challe (CREST & École Polytechnique, Department of
Economics)
Organizer: Dmitry Matveev (CEA)
Date: 8 May 2020

Jean-Charles Rochet (University of Geneva, Geneva School of
Economics and Management)

Organizer: Toni Ahnert (FSD)

Date: 14 May 2020

Raquel Fernandez (New York University, Department of Economics)

Organizer: Gabriela Galassi (CEA)

Date: 15 May 2020

Ufuk Akcigit (University of Chicago, Department of Economics)

Organizer: Martin Küncl (CEA)

Date: 28 May 2020

Ryan Kellogg (University of Chicago, Harris School of Public Policy)

Organizer: Reinhard Ellwanger (INT)

Date: 5 June 2020

Karel Mertens (Federal Reserve Bank of Dallas)

Organizer: Daniela Hauser (CEA)

Date: 12 June 2020

Kozo Uzeda (Waseda University, School of Political Science and
Economics)

Organizer: Ben Tomlin (INT)

Date: 24 July 2020

Dirk Krueger (University of Pennsylvania, Department of Economics)

Organizer: Katya Kartashova (CEA)

Date: 28 August 2020

Vincent Sterk (University College London, Department of Economics)

Organizer: Tom Pugh (FSD)

Date: 3 September 2020

Arlene Wong (Princeton University, Department of Economics)

Organizer: Julien Champagne (CEA)

Date: 11 September 2020

Roberto Chang (Rutgers University, Department of Economics)

Organizer: Julien Bengui (INT)

Date: 18 September 2020

Òscar Jordà (Federal Reserve Bank of San Francisco)
Organizers: Jean-Sébastien Fontaine & Bruno Feunou (FMD)
Date: 24 September 2020

Johannes Wieland (University of California San Diego, Department of
Economics)
Organizer: Julien Champagne (CEA)
Date: 25 September 2020

Daniel Xu (Duke University, Department of Economics)
Organizer: Lin Shao (INT)
Date: 2 October 2020

Kaiji Chen (Emory University, Department of Economics)
Organizer: Lin Shao (INT)
Date: 16 October 2020

Leonardo Melosi (Federal Reserve Bank of Chicago)
Organizer: Romanos Priftis (CEA)
Date: 6 November 2020