Fernando Duarte

CONTACT INFORMATION

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EDUCATION

Massachusetts Institute of Technology, Cambridge MA
Ph.D. in Economics **2011**

Massachusetts Institute of Technology, Cambridge MA
Bachelor of Science in Mathematics **2005**

PROFESSIONAL EXPERIENCE

Federal Reserve Bank of New York, NY
Financial Economist (Capital Markets Function) **2011 – present**

PUBLICATIONS

"NKV: A New Keynesian Model with Vulnerability" (with Tobias Adrian, Nellie Liang and Pawel Zabczyk)
AEA Papers and Proceedings, vol. 110, May 2020 (pp. 470-76)

Abstract: We present a New Keynesian model with endogenous risk. The conditional output gap volatility depends on the price of risk, giving rise to a vulnerability channel of monetary policy. Lower interest rates not only shift consumption intertemporally but also shift conditional output risk. The model fits estimates of the conditional output gap distribution 1 to 12 quarters ahead and suggests an intertemporal risk return trade-off for policymakers. Via the impact on risk taking, easy monetary policy lowers short-term downside risks to growth but increases medium-term risks. The framework can be used to jointly consider macroprudential and monetary policy.

"Fire-Sale Spillovers and Systemic Risk" (with Thomas Eisenbach)
Journal of Finance, Forthcoming

Abstract: We identify and track over time the factors that make the financial system vulnerable to fire sales by constructing an index of aggregate vulnerability. The index starts increasing quickly in 2004, before most other major systemic risk measures, and triples by 2008. The fire-sale-specific factors of delevering speed and concentration of illiquid assets account for the majority of this increase. Individual banks' contributions to aggregate vulnerability predict other firm-specific measures of systemic risk, including SRISK and ΔCoVaR. The balance sheet-based measures we propose are therefore a useful early indicator of when and where vulnerabilities are building up.

"Time-Varying Inflation Risk and Stock Returns" (with Martijn Boons, Frans de Roon, and Marta Szymanowska)
Journal of Financial Economics, Forthcoming

Abstract: We show that inflation risk is priced in stock returns and that inflation risk premia in the cross-section and the aggregate market vary over time, even changing sign as in the early 2000s. This time variation is due to both price and quantities of inflation risk changing over time. Using a consumption-based asset pricing model, we argue that inflation risk is priced because inflation predicts real consumption growth. The historical changes in this predictability and in stocks' inflation betas can account for the size, variability, predictability, and sign reversals in inflation risk premia.

"Comment on 'Forward guidance: Communication, commitment, or both?' by Marco Bassetto"
Journal of Monetary Economics, Volume 108, December 2019, Pages 87-92

Abstract: Forward guidance can be cheap talk in an infinitely repeated game with the public. Asymmetric information is necessary for cheap talk to be useful. The central bank can build credibility

over time to make cheap talk credible. When to use forward guidance instead of general transparency remains unclear. Adding a lower bound on interest rates does not change the main conclusions.

"Monetary Policy and Financial Conditions: A Cross-Country Study" (with Tobias Adrian, Federico Grinberg and Tommaso Mancini-Griffoli)
Advancing the Frontiers of Monetary Policy, Chapter 7, Tobias Adrian, Doug Laxton and Maurice Obstfeld, editors, International Monetary Fund, Washington DC, April 2018

Abstract: Loose financial conditions forecast high output growth and low output volatility up to six quarters into the future, generating time varying downside risk to the output gap which we measure by GDP-at-Risk (GaR). This finding is robust across countries, conditioning variables, and time periods. We study the implications for monetary policy in a reduced form New Keynesian model with financial intermediaries that are subject to a Value at Risk (VaR) constraint. Optimal monetary policy depends on the magnitude downside risk to GDP, as it impacts the consumption-savings decision via the Euler constraint, and the financial conditions via the tightness of the VaR constraint. The optimal monetary policy rule exhibits a pronounced response to shifts in financial conditions for most countries in our sample. Welfare gains from taking financial conditions into account are shown to be sizable.

"The Equity Risk Premium: A Review of Models" (with Carlo Rosa)
Federal Reserve Bank of New York Economic Policy Review, Volume 21, Number 2, December 2015

Abstract: We estimate the equity risk premium (ERP) by combining information from twenty models. The ERP in 2012 and 2013 reached heightened levels —of around 12 percent— not seen since the 1970s. We conclude that the high ERP was caused by unusually low Treasury yields.

Working Papers

"Financial Vulnerability and Monetary Policy" (with Tobias Adrian)

Abstract: We present a microfounded New Keynesian model that features financial vulnerabilities. Financial intermediaries' occasionally binding value at risk constraints give rise to variation in the pricing of risk that generate time varying risk in the conditional mean and volatility of the output gap. The conditional mean and volatility are negatively related: during times of easy financial conditions, growth tends to be high, and risk tends to be low. Monetary policy affects output directly via the IS curve, and indirectly via the pricing of risk that relates to the tightness of the value at risk constraint. The optimal monetary policy rule always depends on financial vulnerabilities in addition to the output gap, inflation, and the natural rate. We show that a classic Taylor rule exacerbates deviations of the output gap from its target value of zero relative to an optimal interest rate rule that includes vulnerability. Simulations show that optimal policy significantly increases welfare relative to a classic Taylor rule. Alternative policy paths using historical examples illustrate the usefulness of the proposed policy rule.

"How to Escape a Liquidity Trap with Interest Rate Rules"

Abstract: I study how central banks should communicate monetary policy in liquidity trap scenarios in which the zero lower bound on nominal interest rates is binding. Using a standard New Keynesian model, I argue that the key to preventing self-fulfilling deflationary spirals and anchoring expectations is to promise to keep nominal interest rates pegged at zero for a length of time that depends on the state of the economy. I derive necessary and sufficient conditions for this type of state contingent forward guidance to implement the welfare maximizing equilibrium as a globally determinate (i.e., unique) equilibrium. Even though the zero lower bound prevents the Taylor principle from holding, determinacy can be obtained if the central bank sufficiently extends the duration of the zero interest rate peg in response to deflationary or contractionary changes in expectations or outcomes. Fiscal policy is passive, so it plays no role for determinacy. The interest rate rules I consider are easy to communicate, require little institutional change and do not entail any unnecessary social welfare losses.

"Empirical Network Contagion for US Financial Institutions" (with Collin Jones)

Abstract: We construct an empirical measure of expected network spillovers that arise through

default cascades for the US financial system for the period 2002-2016. Compared to existing studies, we include a much larger cross-section of US financial firms that comprise more than 80% of total domestic financial assets, capturing all bank holding companies, all broker-dealers, all insurance companies, and all real estate investment trusts. We find negligible expected spillovers from 2002 to 2007 and from 2013 to 2016. However, between 2008 and 2012, we find that default spillovers can amplify expected losses by up to 20%, a significantly higher estimate than previously found in the literature.

"Cross-sectional inflation risk in menu cost models with heterogeneous firms"

Abstract: We show that firms in models with menu costs, when calibrated to have the empirically observed frequency and size of individual-goods price adjustments, have stock returns that are always positively correlated with inflation. The cross-sectional dispersion in this correlation is almost negligible, even though firms have very diverse micro-level pricing behavior. Because in this class of models positive nominal shocks are good states of nature and the correlation between stock returns and inflation is positive, agents are willing to pay a premium to hold assets whose returns covary negatively with inflation. In contrast, we empirically find that the dispersion in the correlation between stock returns and inflation is about 100 times larger than in the model, and that correlations are negative about half the time. Furthermore, and also at odds with sticky-price models, investors require a premium to hedge against states of high inflation. Because firms' heterogeneity is the key mechanism that generates a high degree of monetary non-neutrality in the models, our results suggest that we do not yet have a full account of the monetary transmission mechanism, and that asset prices can provide important information about it.

"Investment and Stock Market Volatility" (with Leonid Kogan and Dimitry Livdan)

Abstract: We study the relation between returns on the aggregate stock market and aggregate real investment. While it is well known that, controlling for productivity, the aggregate investment rate is negatively related to subsequent excess stock market returns, we find that it is positively related to future stock market volatility. Thus, conditionally on past aggregate investment, the mean-variance tradeoff in aggregate stock returns is negative. We interpret this puzzling pattern within a general equilibrium production economy. In our model, investment is determined endogenously in response to two types of shocks: shocks to productivity, and shocks to aggregate risk aversion that affect the cost of capital. Investment is positively related to productivity and negatively related to the cost of capital. Controlling for productivity, high-investment periods tend to correspond to low cost of capital, giving rise to a negative relation between aggregate investment and expected excess stock market returns. When cost of capital is low, and thus close to the growth rates of cash flows, stock prices are relatively sensitive to changes in discount rates and stock returns become relatively volatile, giving rise to a positive relation between investment and future stock market volatility. Consequently, our results indicate that the time-varying price of aggregate risk is an important determinant of aggregate investment dynamics.

PRESS COVERAGE AND SOCIAL MEDIA

"Banking System Vulnerability: Update", in Liberty Street Economics blog, December 2019 (with Kristian Blickle, Thomas Eisenbach and Anna Kovner).

"How Large Are Default Spillovers in the U.S. Financial System?", in Liberty Street Economics blog, June 2019 (with Collin Jones and Francisco Ruela).

"Assessing Contagion Risk in a Financial Network", in Liberty Street Economics blog, June 2019 (with Collin Jones and Francisco Ruela).

"Ten Years after the Crisis, Is the Banking System Safer?", in Liberty Street Economics blog, November 2018 (with Dong Beom Choi, Thomas Eisenbach and James Vickery).

"How to Escape a Liquidity Trap with Interest Rate Rules"
Coverage: Wall St. Journal

"Quantifying Potential Spillovers from Runs on High-Yield Funds", in Liberty Street Eco-

nomics blog, February 2016 (with Nicola Cetorelli, Thomas Eisenbach and Emily Eisner). Coverage: NY Times, Financial Times

"Are Asset Managers Vulnerable to Fire Sales?", in Liberty Street Economics blog, February 2016 (with Nicola Cetorelli and Thomas Eisenbach). Coverage: Financial Times, Bloomberg, Wall St. Journal

"What Can We Learn from Prior Periods of Low Volatility?", in Liberty Street Economics blog, October 2014 (with Juan Navarro-Staicos and Carlo Rosa).

"On Fire-Sale Externalities, TARP Was Close to Optimal", in Liberty Street Economics blog, April 2014 (with Thomas Eisenbach).

"A Way With Words: The Economics of the Fed's Press Conference", in Liberty Street Economics blog, November 2013 (with Carlo Rosa).

"Are Stocks Cheap? A Review of the Evidence", in Liberty Street Economics blog, May 2013 (with Carlo Rosa). Coverage: The Economist, NY Times, Wall St. Journal

Teaching

Massachusetts Institute of Technology

Lecturer, International Economics
(undergraduate, course 14.54) **2008**

Teaching assistant, Advanced Financial Economics
(Prof. Leonid Kogan, graduate course 15.440J) **2009 – 2010**

Head teaching assistant, Principles of Macroeconomics
(Profs. P. Willen, F. Giavazzi and V. Guerrieri, undergraduate course 14.02) **2008 – 2009**

Teaching assistant, Differential Equations with Theory
(Prof. Mihalis Dafermos, undergraduate course 18.034) **2003**

Fellowships, Grants, Awards

MIT Hennessy Scholar	**2004-2007**
MIT Graduate Fellowship	**2006-2007**
Second Place, MIT Undergraduate Journal of Economics	**2005**
3rd place, MERCOSUR Mathematical Olympiad	**1998**
Top 1% in Argentinean Mathematical Olympiad	**1995-1997**

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