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**

RESEARCH

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

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.

"Fire-Sale Spillovers and Systemic Risk" (with Thomas Eisenbach)
Revise and resubmit, Review of Financial Studies

Abstract: We construct a new systemic risk measure that quantifies vulnerability to fire-sale spillovers using detailed repo market data for broker-dealers and regulatory balance sheet data for U.S. bank holding companies. For broker-dealers, vulnerabilities in the repo market are driven by flight-to-quality episodes, when liquidity and leverage can change rapidly. We estimate that an exogenous 1 percent decline in the price of all assets financed with repos leads to losses due to fire sale spillovers of 8 percent of total broker-dealer equity on average and over 12 percent during the financial crisis. For bank holding companies, vulnerabilities to fire-sales are equally sizable but build up slowly over time. Our measure signals build-up of systemic risk starting in the early 2000s, ahead of many other measures. Our measure also predicts low quantiles of macroeconomic outcomes above and beyond other existing measures, especially at longer horizons.

"Time-Varying Inflation Risk and the Cross Section of Stock Returns" (with Martijn Boons, Frans de Roon, and Marta Szymanowska)
Revise and resubmit, Journal of Finance

Abstract: We show that inflation risk is priced in the cross section of U.S. stock returns with a price of inflation risk that is comparable in magnitude to that of the aggregate market. The inflation risk premium varies over time conditional on the nominal-real covariance, the time-varying relation between inflation and the real economy. Using a consumption-based equilibrium asset pricing model, we argue that inflation is priced because it predicts real consumption growth. The historical changes in the predictability of consumption with inflation, which are mediated by the nominal-real covariance, can account for the size, variability, predictability, and sign reversals —last observed in the 2000s— in the inflation risk premium.

"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 give necessary and sufficient conditions for a class of interest rate feedback rules to eliminate self-fulfilling deflations and all other undesired equilibria in a standard New Keynesian economy with a binding zero lower bound. When the interest rate rule is continuous in the state of the economy, keeping interest rates pegged at zero in state-contingent way for a long enough initial period of time and then switching to a Taylor rule that does *not* obey the Taylor principle is necessary and sufficient to implement the welfare-maximizing equilibrium in a globally determinate (i.e., unique) way. When the interest rate rule is not continuous, the previous condition is still sufficient but no longer necessary. Fiscal policy is passive, so monetary policy anchors expectations on its own. The interest rate rules I consider do not require central banks to undergo any institutional change and do not rely on the neo-Fisherian mechanism of inducing an increase in inflation by first increasing interest rates.

"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" (with Jonas Mishara-Blomberger)

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.

"Institutional Investors Intrinsic Trading Frequency and the Cross-Section of Stock Return" (with Sahar Parsa and Leonid Kogan)

Abstract: We show a novel relation between institutional investors intrinsic trading frequencya proxy investment horizon and the cross-section of stock returns. We show that the 20 percent of stocks with the lowest trading frequency earn predictable mean returns that are 6 percentage points per year higher than the 20 percent of stocks that have the highest trading frequency. The magnitude and predictability of these returns persist or even increase when risk-adjusted by common indicators of systematic risks such as the Fama-French, liquidity or momentum factors. Our results show that the characteristics of stock holders affect expected returns of the very stocks they hold, even after controlling for stock fundamentals and stock fixed effects.

"Investing in Capacity: Long-run Effects of Rational Inattention" (with Nina Boyarchenko)
In progress

Abstract: Many models posit that agents have a limited capacity to process information. The standard specification assumes that information processing capacity is constant, precluding agents from investing in capacity to relax their informational constraints. We compare the long-run behavior of three different specifications of learning processes that of a Bayesian agent, an agent with fixed capacity to process information and an agent with a fixed cost of observing additional information and find that the steady-states for the economy-wide levels of uncertainty, signal precision and information transmission rate are different across specifications. Further, the agents with an endogenously chosen capacity to process information learn less in the long-run, so that the distance between the modes of the posterior and prior distributions is smaller.

"A large-scale GMM analysis of long-run risk" (with Jonas Mishara-Blomberger)
In progress

Abstract: We build a large-scale long-run risk model that incorporates all the variations and multiple ingredients found in the literature. We then estimate the parameters of nested models, going from the canonical model of Bansal and Yaron (2004) to the full-fledged large-scale model. We use more than one hundred moments in our parameter estimation, including moments about the persistence of consumption, inflation and their lead-lag relations, predictability of asset prices with macroeconomic variables and stochastic volatility. We find that allowing for real effects of inflation plays a vital role in the pricing of stocks and bonds. The real effects of inflation displace about half of the effect otherwise attributed to long-run risk when the model assumes inflation has no real effects.

PRESS COVERAGE AND MEDIA

"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 Economics 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

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

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

"A Way With Words: The Economics of the Feds 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

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**

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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