

Purdue University
Mitchell E. Daniels, Jr.
403 W. State Street
West Lafayette, IN 47907

Office: 509 KRAM
Email: dejanir@purdue.edu
<http://www.dejanirsilva.com>

Academic Positions

Assistant Professor of Finance, Purdue University, 2021 – present
Assistant Professor of Finance, University of Illinois at Urbana-Champaign, 2017 – 2021
Lecturer, Princeton University, Bendheim Center for Finance, 2016 – 2017

Research Interests

Macro Finance, Asset Pricing, Financial Intermediation

Education

Ph.D. in Economics, Massachusetts Institute of Technology, 2016
Thesis advisors: Robert Townsend, Iván Werning, Alp Simsek, and Leonid Kogan
MSc. in Economics, University of São Paulo (USP), 2011
BSc. in Economics, University of São Paulo (USP), 2008

Published or Accepted Papers

1. **Under-diversification and Idiosyncratic Risk Externalities**,
with Felipe Iachan and Chao Zi

Journal of Financial Economics

Winner of best finance paper at the SBE meeting (2019)

We study the effects of idiosyncratic uncertainty on asset prices, investment, and welfare. We consider an economy with two main components: i) under-diversification and ii) endogenous and countercyclical idiosyncratic risk. The equilibrium is subject to underinvestment and excessive aggregate risk-taking. Inefficiencies stem from an idiosyncratic risk externality, as firms do not internalize the effect of their investment decisions on the risk borne by others. Risk externalities depend on an idiosyncratic risk premium and a variance risk premium. We assess their magnitude empirically. The optimal allocation can be implemented through financial regulation using a tax benefit on debt and risk-weighted capital requirements.

2. **Optimal Fiscal Consolidation under Frictional Financial Markets**

Economic Journal

This paper studies optimal fiscal policy in a currency union subject to capital flow shocks. I consider an economy with two main ingredients: i) sticky prices and ii) financially constrained international arbitrageurs. Given capital outflows and high external debt, the fiscal authority faces a trade-off between stimulating the economy or paying off the external debt to reduce sovereign spreads. I find that it is *not* optimal to use government spending to stimulate the economy. The planner reduces the VAT in the short-run and increases it over time. It is optimal to raise and front-load the sum of the VAT and payroll tax, in contrast with fiscal devaluation proposals. The country engages in a fiscal consolidation, as government debt falls compared with a passive fiscal policy.

3. Fiscal Policy and the Monetary Transmission Mechanism,
with Nicolas Caramp

Review of Economic Dynamics

The economy's response to monetary policy depends on its fiscal backing. We present a novel decomposition of the equilibrium that links the wealth effect, i.e. the revaluation of households' financial and human wealth, to the fiscal response to monetary policy. When monetary policy has fiscal consequences, monetary variables affect the timing of aggregate output while fiscal variables determine its present value and the wealth effect. The dynamics of inflation can significantly amplify the impact of the wealth effect on initial output, even in a representative agent model. The slope of the Phillips curve determines the importance of monetary-fiscal coordination.

4. Machine Learning for Continuous-Time Finance,
with Victor Duarte and Diogo Duarte

Review of Financial Studies (editor's choice/lead article)

We develop an algorithm for solving a large class of nonlinear high-dimensional continuous-time models in finance. We approximate value and policy functions using deep learning and show that a combination of automatic differentiation and Ito's lemma allows for the computation of exact expectations, resulting in a negligible computational cost that is independent of the number of state variables. We illustrate the applicability of our method to problems in asset pricing, corporate finance, and portfolio choice and show that the ability to solve high-dimensional problems allows us to derive new economic insights.

5. Monetary Policy and Wealth Effects: The Role of Risk and Heterogeneity,
with Nicolas Caramp

Journal of Finance

We study the role of wealth effects, i.e. the revaluation of real and financial assets, in the monetary policy transmission mechanism. We build an analytical heterogeneous-agents model with two main ingredients: i) rare disasters and ii) risky household debt. The model captures time-varying risk premia and precautionary savings in a linearized setting that nests the textbook New Keynesian model. Quantitatively, the model matches the empirical response of asset prices and the heterogeneous impact on borrowers and savers. We find that wealth effects induced by time-varying risk and household debt account for the bulk of the output response to monetary policy. Defaultable private debt amplifies the effects of monetary policy, but the effect decreases with its duration. Controlling for the fiscal response to a monetary shock is crucial for the quantitative results.

6. Heterogeneous Beliefs, Asset Prices, and Business Cycles,
with Saki Bigio and Eduardo Zilberman

Journal of Financial Economics, accepted for publication

Winner of best macrofinance paper at the EBF Meeting (2025)

We develop a complete-market production economy in which heterogeneous beliefs about productivity growth affect both asset prices and real activity. Firms must hire workers before productivity is realized, so operating leverage increases the exposure of profits to productivity risk. Because the firm's discount factor depends on a wealth-weighted aggregation of investor beliefs, shifts in optimism compress risk premia and raise employment, while reversals trigger contractions. This mechanism generates an equilibrium feedback between asset prices, hiring, and risk exposure. A taxonomy of belief systems shows that only extrapolative beliefs produce amplification and endogenous risk build-up. Disciplined by survey expectations, the model jointly matches key asset-pricing, trading-volume, and business-cycle moments.

7. The Risk Channel of Unconventional Monetary Policy

Review of Financial Studies, accepted for publication

This paper studies how unconventional monetary policy affects asset prices and the macroeconomy through risk reallocation in an environment with heterogeneous risk tolerance and passive investors. The economy is subject to inefficient balance sheet recessions, in which risk becomes excessively concentrated on financial intermediaries, raising risk premia and depressing asset prices and growth. Central bank asset purchases shift risk from active to passive investors, reducing risk premia, volatility, and tail risk. Optimal policy is state-contingent: the central bank increases risk exposure when intermediary balance sheets are weak, and a policy rule based on the bond-stock beta tracks the optimal allocation.

Working Papers

8. Risk-taking over the Life Cycle: Aggregate and Distributive Implications of Entrepreneurial Risk,
with Robert Townsend

Quarterly Journal of Economics, reject and resubmit

We study the risk-taking behavior of entrepreneurs over the life cycle in the presence of limited idiosyncratic insurance. The model is able to quantitatively account for the levels of aggregate and idiosyncratic risk premium, the patterns of inequality, and the life cycle profiles observed in the data. A relaxation of risk constraints leads to a reduction in the idiosyncratic risk premium and an investment boom. Consistent with a Kuznets curve, inequality increases in the short-run, but it declines in the long-run. The initial generation of entrepreneurs benefits from better insurance, but future generations of entrepreneurs are worse-off after the reform.

9. Liquidity and Risk in OTC Markets: A Theory of Asset Pricing and Portfolio Flows,

with Mahyar Kargar, Juan Passadore, and Yucheng Yang

Journal of Finance, revise and resubmit (resubmitted)

We develop an asset-pricing model with heterogeneous investors, search frictions, and wealth effects. Trade is intermediated by risk-neutral dealers subject to capacity constraints. Risk-averse investors can direct their search towards dealers based on price and execution speed. Order flows affect the risk premium, volatility, and equilibrium interest rate. We propose a new solution method to characterize the equilibrium analytically. We assess the quantitative implications of the model in response to a large adverse shock. Consistent with the empirical evidence from the COVID-19 crisis, we find an increase in the risk premium and market illiquidity, and a decline in interest rates.

10. Sticky Inflation: Monetary Policy when Deficits Drag Inflation Expectations,

with Saki Bigio and Nicolas Caramp

Journal of Political Economy: Macroeconomics, revise and resubmit

We append the expectation of a possible monetary-fiscal reform to a standard New Keynesian model. If a reform occurs, monetary policy will temporarily aid debt sustainability through a temporary burst in inflation. Prior to a reform, rising public debt due to deficits pushes up inflation expectations. Monetary policy interest rates have two effects: they influence demand and affect expected inflation in opposite directions. The expectations effect is linked to the impact of interest rates on public debt. While lowering inflation in the short term is possible through demand control, inflation tends to rise again due to expectations (sticky inflation). Optimal monetary policy may require negative real interest rates after fiscal shocks, temporarily breaking from the Taylor principle. We assess whether the Federal Reserve's "staying behind the curve" was the right strategy during the recent inflation surge.

11. Dissecting the Aggregate Market Elasticity,

with Victor Duarte, Goutham Gopalakrishna, Mahyar Kargar, and Jiacui Li (submitted)

We study aggregate market elasticity, the inverse price impact of portfolio flows, in general equilibrium with heterogeneous investors and passive demand. Once interest rates adjust, elasticity is governed by how flows shift the consumption–wealth relation, not by individual demand elasticities. At the efficient allocation, interest-rate movements offset risk-premium responses, making the aggregate claim infinitely elastic. Risk misallocation generates finite price impact, amplified by preference heterogeneity, leverage constraints, and cash-flow leverage. A perturbation method characterizes this mechanism analytically. Quantitatively, the baseline reaches the lower end of empirical estimates, while an extension with belief distortions raises price impact to the upper end.

12. On the Recovery of Demand Elasticities in Dynamic Settings,

with Carter Davis, Mahyar Kargar, and Jiacui Li (submitted)

We recover structural demand elasticities in dynamic asset markets. When instruments affect both current prices and expected future demand conditions, static estimates mix contemporaneous and forward-looking demand coefficients. We recover the dynamic demand kernel from instrument-induced response paths under a rank condition. Recovery requires neither observing investors' expectations or state variables nor adding external instruments beyond those needed for static estimation. In weekly order-flow data, the naive static estimate is about 0.36, compared with a recovered own-price elasticity of about 5. Stock-specific demand is nearly myopic, whereas systematic demand is forward-looking, with cross-portfolio substitution patterns that vary across horizons. Shifting outside-demand shocks toward the market direction substantially amplifies prices and generates cross-asset spillovers.

13. Monetary Policy and the Zero-Beta Rate,

with Nicolas Caramp and Andres Sarto

Central banks set the federal funds rate, but the rate that determines household saving and spending is the zero-beta rate, the risk-free return implied by the price of risky assets rather than by Treasury yields. Following a monetary contraction, the zero-beta rate rises 3.6 times more than the policy rate, as falling bond prices reduce the supply of liquid assets and raise the marginal value of liquidity. When the Euler equation uses the zero-beta rate, it accounts for the observed response of consumption to monetary policy; the textbook specification understates the response by roughly eighty percent. We develop an analytical heterogeneous-agent New Keynesian model with rare disasters and liquidity services that matches the term premium, equity premium, and convenience yield. If Treasuries lost their convenience value, the output response to monetary policy would fall by twenty-one percent.

14. Whither Independence? Central Bank's Balance Sheet and the Need for Fiscal Support

with Nicolas Caramp and Yilin (David) Yang

We study how losses on a central bank's balance sheet affect its ability to conduct monetary policy independently of fiscal support. We develop a model in which the central bank holds long-term government bonds financed by reserves and is exposed to shocks to interest rates and term premia. We show that market-value losses can substantially overstate the fiscal support required to maintain solvency. The relevant measure instead accounts for the present value of future remittances, operating costs, and seigniorage revenues. Quantitatively, the Federal Reserve can absorb large balance-sheet losses without fiscal support, clarifying the link between central bank balance-sheet risk and monetary-policy independence.

Teaching Experience

EDHEC Business School

Machine Learning for Computational Economics, Executive PhD

Purdue University

Investment Management, Undergraduate
Asset Pricing, PhD

University of Illinois at Urbana-Champaign

Advances in Asset Pricing, PhD
Investments, Undergraduate/Master of Science in Finance
Macrofinance, Master of Science in Finance

Princeton University

Asset Pricing I, Master in Finance
Money and Banking, Undergraduate

Fellowships, Honors, and Awards

Macro Financial Modelling Group, Dissertation Fellowship, 2014-2015

Graduate Fellowship, Department of Economics, MIT, 2011-2013

Ryoichi Sasakawa Young Leaders Fellowship, 2011

FAPESP Fellowship, 2010

CNPq Scholarship, Msc in Economics, 2009

First place in the National Graduate Admission Exam (ANPEC)

Presentations

2026 (included expected): American Finance Association (AFA) Meeting, EDHEC Business School, Duke/UNC Asset Pricing conference, NBER LTAM, Miami Macro Workshop, Macro Finance Society Workshop, Cavalcade (2x), Cavalcade (Discussant), WFA, Banco de Mexico, Barcelona Summer Forum, SED, NBER SI (Macro, Money and Financial Frictions), NBER SI (Impulse and Propagation Mechanisms), UCLA, Richmond Fed Core Week.

2025: USC Macro-Finance Conference (Discussant), NBER Monetary Economics Spring meeting, University of Hamburg, SFS Cavalcade (Discussant), EBF (Encontro Brasileiro de Finanças) Meeting, NBER Summer Institute (Impulse and Propagation), CEBRA Annual Meeting, Annual Conference on Advances in Macro-Finance (SF Fed), Stanford Institute for Theoretical Economics (SITE), Midwest Macroeconomics Meeting, MacroFinance Workshop (Discussant).

2024: Midwest Finance Association Annual Meeting (Discussant), Texas A&M Young Scholars Finance Consortium, CEPR Household Finance Seminar (online), Federal Reserve SF Conference on "Fixed Income

Markets and Inflation,” LuBraMacro Conference, China International Conference in Macroeconomics (CICM), Conference for Financial Economics and Accounting (CFEA) (Discussant), Western Finance Association (WFA), Theories and Methods in Macro (T2M), Tilburg Growth, Trade and International Finance Conference (GIFT), Financial Intermediation Research Society (FIRS) (Discussant), BSE Summer Forum - Macroeconomics and Finance Workshop (Discussant), European Summer Symposium in Financial Markets (Gerzensee), Conference on “Expectations, Prices, and Monetary Policy,” University of Zurich.

2023: Midwest Finance Association Annual Meeting (Discussant), Annual Paul Woolley Centre Conference (LSE), CEBRA Annual Meeting (discussant), Society for Economic Dynamics (SED), FGV-EPGE, Liquidity and Macro (LiMa) Workshop, Wabash Conference, Chicago Fed, Wharton, SBE Econometric Meeting (mini course)

2022: MFA, Virtual Brazilian Finance Seminar (SBFin), Econometric Society (American Meeting), CESifo Macro, Money, and International Finance

2021: SFS Cavalcade, Society for Economic Dynamics (SED), Western Finance Association (WFA), Eastern Finance Association (EFA), Johns Hopkins Carey, SAMMF, UIUC, NBER Summer Institute, Nova Summer School (discussant), World Finance Conference, American Real Estate and Urban Economics Association (AREUA) meeting (discussant), Brazil Central Bank, Stanford Institute for Theoretical Economics (SITE), UFPE.

2020: IMF, UCLA Anderson, Western Finance Association (discussant), Barcelona GSE Summer Forum (ADEMU), Midwest Finance Association (discussant), FGV, Insper, Liquidity and Macroeconomics workshop (UC Davis)

2019: Fed Dallas, EPGE, ITAM Finance Conference (discussant), LuBraFin, Society of Economics Dynamics, Western Finance Association, EIEF, Brazilian Econometric Society (SBE), UIUC

2018: Bank of Portugal, PUC Chile, PUC Rio. Barcelona GSE Summer Forum, Econometric Society (American Meeting) (2x), Econometric Society (European Meeting), Society of Economics Dynamics (2x), EIEF (Rome)

2017: Gerzensee Conference, LuBraMacro, MFM Meeting, Philadelphia Fed, Richmond Fed, Princeton

2016: UIUC Finance, UChicago Booth, FED Board, Princeton, PUC-RJ, EPGE, Insper, FGV-SP. LuBraMacro, LACEA-LAMES, UCLA

2015: MIT, MFM Meeting (NYU Stern), USP.

Conference Discussions

van Der Beck, Philippe, “A Bound on Price Impact and Heterogeneity”

Wang, Jianlin, “Multinationals and Uncertainty: The Role of Internal Capital Market”

Falato, Kaboski, and Xiao, “Information Spreads”

Panageas, Stavros, “Growth-Indexed Securities”

Choi, Jason, “US Public Debt and Safe Asset Market Power”

Sigalov, Roman, “Real and Financial Options: A Production Based Approach to Option Pricing”

Fuchs, Fukuda, and Neuhaus, “Demand-System Asset Pricing: Theoretical Foundations”

Kekre, Lenel, and Mainard, “Monetary Policy, Segmentation, and the Term Structure”

Yerramilli, Vijay, “Environmental Pollution and Business Activity”

Afonso, Duffie, Rigon, and Shin, “How abundant are reserves? Evidence from wholesale payment system”

Bena, Fisher, Knesl and Vahl, “Pricing Technological Innovators: Patent Intensity and Life-Cycle Dynamics”

Choi, Tian, Wu, and Kargar, “Investor Demand, Firm Investment, and Capital Misallocation”

Khorrami and Mendo, “Fear and Volatility at the Zero Lower Bound”

Bakshi and Londono, “King U.S. Dollar, Global Risks, and Currency Option Premiums”

De La O and Myers, “Real Cash Flow Expectations and Asset Prices”

Krishnamurthy and Li, “Dissecting Mechanisms of Financial Crises: Intermediation and Sentiment”

Gorton and Ordoñez, "The Supply and Demand for Safe Assets"
Bolton, Li, Wang, and Yang, "Dynamic Banking and the Value of Deposits"
Bigio and Zilberman, "Heterogeneous Beliefs and Business Cycles"
Yu, Fangyan, "Dynamic Adverse Selection and Asset Sales"
Reis, Ricardo, "The Constraint on Public Debt When $r < g$ but $g < m$ "
D'Acunto, Malmendier, Ospina, and Weber, "Exposure to Daily Price Changes and Inflation Expectations"
Schneider, "Financial Intermediaries and the Yield Curve"
Croce, Jahan-Parvar, and Rosen, "SONOMA: a Small Open ecoNomy for MACrofinance"
Clara, "Demand Elasticities, Nominal Rigidities and Asset Prices"
Chari, Nicolini, and Teles, "Ramsey Taxation in the Open Economy"

Professional Services

Referee

American Economic Review, Journal of Political Economy, Review of Economic Studies, American Economic Review: Insights, Review of Financial Studies, Journal of Finance, Management Science, American Economic Journal: Macroeconomics, Journal of Monetary Economics, Journal of Economic Theory, Economic Journal, Review of Economic Dynamics, Theoretical Economics, Journal of Mathematical Economics, BE Journal of Macroeconomics, Journal of Money, Credit, and Banking, Journal of Development Economics, European Economic Review, Journal of Financial Services Research, Canadian Journal of Economics, Journal of Banking & Finance, Quarterly Review of Economics and Finance, Review of Asset Pricing Studies, Applied Economics Letters, Economics and Business Letters, Applied Economics, Journal of Financial and Quantitative Analysis, Journal of Financial Stability, Journal of International Financial Markets, Institutions & Money, Quantitative Finance and Economics, Cogent Economics & Finance, and Revista Finanzas y Política Económica.

Program Committee

Western Finance Association (WFA), SFS Cavalcade, European Finance Association (EFA), Midwest Finance Association (MFA)

Research Affiliate

CESifo Research Network

Personal Information

Born: March 9, 1984. Dual Citizenship: Brazilian and American. Married with two children.