

Finance: Selected Doctoral Theses

“Essays on Entrepreneurship and Finance”

Author: Maya Bidanda (2024)

Committee: Antoinette Schoar (chair), David Thesmar, Christopher Palmer, Lawrence Schmidt

Abstract:

This thesis consists of three chapters on entrepreneurship and finance. The first chapter studies how small employers are the origins of entrepreneurs. I find that workers at small employers are more likely to be entrepreneurs in the future and that entrepreneurs who previously worked at successful small employers are more likely to start successful firms. This is consistent with a hypothesis of learning entrepreneurial human capital at work. The second chapter, joint with Alex Martin, studies the impact of access to childcare on self-employment outcomes. We find that parents, particularly mothers with children too young for kindergarten, are more likely to be self-employed and less likely to be in the formal workforce than parents with children old enough for school. When introducing exogenous access to pre-kindergarten childcare, mothers with access are less likely to be self-employed and more likely to be in formal work. This suggests that labor market barriers in formal work are a push into self-employment for parents. However, self-employment in this setting results in lower wages and difficulty finding future work, so policy should work to correct this push. The third chapter studies the spillover effects of labor displacement from technological innovation in local U.S. labor markets. I find evidence of a decrease in local aggregate demand in local economies that are particularly hit by labor displacement.

“Essays in Household and Behavioral Finance”

Author: Tim de Silva (2024)

Committee: Jonathan Parker (co-chair), David Thesmar (co-chair), Taha Choukhmane, Lawrence Schmidt, Eric So

Abstract:

This thesis contains three chapters on household finance and behavioral finance. The first chapter studies how to balance insurance and incentives in student loans with income-contingent repayment, which insure borrowers against income risk but also can reduce their incentives to earn more. Using a change in Australia's income-contingent repayment schedule, I show that borrowers reduce their labor supply to lower their repayments. I use these responses to estimate a dynamic model of labor supply with frictions that generate imperfect adjustment. My estimates imply that the labor supply responses to income-contingent repayment decrease the optimal amount of insurance but are too small to justify fixed repayment contracts. The second chapter studies the role of risk preferences and frictions in portfolio choice, using variation in the default asset allocation of 401(k) plans. We estimate that absent participation frictions, 94% of investors would prefer holding stocks in their retirement accounts, with an equity share of retirement wealth that declines over the life cycle. We use this variation to estimate a structural life cycle portfolio choice model with Epstein-Zin preferences. Our results suggest that the lack of participation in the stock market is mainly due to participation frictions rather than non-standard preferences (e.g., loss-aversion). The third chapter studies the properties of subjective forecasts relative to econometric forecasts at different forecast horizons. In the context of corporate earnings forecasts, we find that sell-side equity analyst forecasts outperform econometric forecasts in the short run but underperform in the long run. We then decompose these differences in forecasting accuracy into information, forecast bias, and forecast noise. We find that noise and bias strongly increase with forecast horizon, while equity analysts' information advantage decays rapidly. We show that noise increasing with the forecasting horizon generates a mechanical reversal in the sign of the error-revision (Coibion-Gorodnichenko) regression coefficient at longer horizons, independently of over-/underreaction. Finally, we demonstrate that a parsimonious model with bounded rationality and a noisy cognitive default matches the term structures of noise and bias jointly.

“Essays in Financial Economics”

Author: Joanne Im (2024)

Committee: Deborah Lucas (chair), Hui Chen, Catherine Wolfram

Abstract:

This thesis comprises three chapters on climate and international finance.

Recent pressure on publicly traded (public) firms to divest high greenhouse gas-emitting assets has raised concerns that these assets are flowing to more opaque, privately held (private) firms that may be operating them in more emissions-intensive ways and that sellers are being rewarded for such sales by increased valuations. Whether this is likely to be an important concern depends on the climate and valuation consequences of such asset transfers. These issues are explored in the first two chapters of the thesis.

The first chapter uses data from fossil fuel power plant operations in the United States and employs a difference-in-difference design to estimate the effects of sales on plant emissions outcomes 1998-2022. I find that eighteen months after sale, changes in power plant unit emissions were statistically indistinguishable at the 5% level from zero vis-a-vis comparable plant units that shared technological specifications and were in the same regional electricity area; this was true regardless of whether the buyer was a public or private firm. Then, using data on fossil fuel power plant sale announcements by public firms, I employ an event study methodology to estimate the effect of public-to-private sale announcements on sellers' market values. I find that, on average, the announcement of a sale to a private firm led to cumulative abnormal returns to the seller's stock; however, this average was not statistically different from the average return when the announcement was to a public firm.

The second chapter further investigates from a theoretical perspective. I present a general equilibrium model that predicts what will happen to asset ownership and emissions when public, but not private, firms experience a positive shock to their cost of emitting when there is trade in assets. I find three qualitatively distinct equilibria, one of which is a “greenwashing equilibrium.” The public firm expresses the shock entirely through ownership decisions by selling to private firms and assets emit more than they would have if trade were suppressed. There are also equilibria with no trade and divestments of assets to public firms.

The third chapter studies exchange rate determination. I test a set of assumptions that imply the return parity of long-run, real bonds denominated in different currency numeraire. The joint hypothesis is rejected in our post-2009 sample of developing and developed market currencies; however, I document a strong relationship between changes in the log of bilateral, real exchange rate and real holding period bond returns in the direction of parity, contributing to the Meese-Rogoff puzzle on exchange rate determination.

“Essays in Financial Economics”

Author: Yury Olshanskiy (2024)

Committee: Leonid Kogan (chair), Hui Chen, Jiang Wang

Abstract:

In Chapter 1, I investigate abnormal behavior in individual stocks using two decades of high-frequency U.S. stock market data. I identify hundreds of thousands of short episodes where stocks exhibit “explosive” behavior, deviating from the unit-root null hypothesis. These phenomena span multiple days, differ from typical return movements, and affect a wide range of stocks, including liquid and large-cap stocks. Explosive episodes account for a considerable portion of stocks' idiosyncratic variance. These are transitional episodes with partial reversal, providing predictable returns, setting them apart from large overnight and high-frequency jumps. I analyze stocks and their susceptibility to explosive behavior in connection with aggregate market fluctuations. While downward explosions tend to cluster among stocks and are more pro-cyclical, upward explosions appear as an idiosyncratic phenomenon. Explosive episodes involve significant buying and selling pressure along with trading volume. To explain explosive price movements, the paper introduces a model involving inelastic buyers, insiders, and competitive sellers. It emphasizes the role of explosions in the price discovery process and addresses the observed reversal. The frequency, severity, and reversal of explosiveness are explained by the expected size of inelastic demands, the knowledge possessed by a representative insider, and the frequency of seeing both in the market. Using short interest dissemination dates, empirical tests validate the model's predictions, indicating a higher likelihood of explosive behavior in stocks with substantial reported

short interest.

Chapter 2, joint work with Roman Sigalov, studies the stability of factor structure by analyzing its variation on different market events. We start by documenting variation in distributions, means, volatilities, and correlations in a set of characteristics managed long-short portfolios on the weeks with large market moves, leading earnings announcements, and FOMC announcements with unexpected shocks to interest rates. This variation manifests in differences in factors extracted using characteristics based on statistical methods that we document using Instrumented PCA. The factor structure shows variation in the factor loadings and in the distribution of factors itself. We propose two ways of capturing event-specific variation in the factor structure. The first method, Treatment-IPCA, estimates orthogonal factors specific to the events we consider. We find significant premia associated with some treatment factors. The second method, Boosted-IPCA allows us to test the differential importance of firm characteristics in describing the cross-section of stock returns on market events relative to base periods.

Chapter 3 explores market making under imperfect competition. Using a dataset on individual-level intraday market making in an option market, I demonstrate a significant level of concentration in liquidity provision across options. I propose a dynamic duopoly market making model wherein inventory distribution shapes agents' strategic behavior and observed liquidity provision on best quotes. I characterize the solution up to the optimal actions, enabling straightforward numerical solutions under both non-cooperative and cooperative equilibria. Qualitatively, the equilibria differ under various sets of parameters, allowing for a wide range of possible inventory and liquidity dynamics, some of which are non-trivial. Tight capital constraints and a high rate of order arrival lead to violations of a monotonic principle. In particular, this results in observing "resting" market maker behavior when an agent does not provide liquidity. Conversely, relaxed constraints lead to a more standard equilibrium where market makers reduce inventory imbalances. Analyzing a grim-trigger non-Markov equilibrium, I find that collusive behavior among market makers increases liquidity prices but reduces their variability.

"Essays in Financial Economics"

Author: Justin Scott (2024)

Committee: Emil Verner (chair), Jonathan Parker, Adrien Verdelhan

Abstract:

This thesis contains three chapters exploring the interrelationships among risk premia, the valuation of government debt, and macroeconomic dynamics. The first chapter documents and explores the implications of the risk price puzzle—the empirical disconnect between inflation and risk premium shocks. I show that existing New Keynesian models struggle to rationalize the risk price puzzle with an upward-sloping Phillips curve. To resolve the puzzle, I develop a novel macro-finance model that integrates a two-sector real business cycle framework with the government debt valuation equation, which determines the price level without nominal rigidities. Empirically, the response of inflation to risk premium shocks switches from positive to negative around 1998, mirroring the change in the stock-bond correlation. The model attributes this phenomenon to the changing covariance between shocks to the risk premium and real risk-free rate, which is consistent with the heightened responsiveness of monetary policy to the stock market ("Fed put").

The second chapter uses a flexible SDF model to infer the values of untraded tax and expenditure claims at the state level. Since state governments do not issue their own currencies, they are precluded from monetizing the value of their debt through inflation. On average, I find that surplus risk generates a gap between the market and fundamental values of state-level debt, although the gap is an order of magnitude smaller than at the federal level. Inconsistent with the prior literature, more stringent balanced budget amendments appear to have no effect on state fiscal capacity. The third chapter documents the impact of risk premium shocks on firm-level outcomes and explores the dimensions of heterogeneity in those responses. I find that investment falls more for firms with higher betas. Risk premium shocks also increase misallocation as proxied by dispersion in marginal product of capital (MPK), although they have no effect on aggregate total factor productivity.

“Essays in Financial Economics”

Author: Allison Cole (2023)

Committee: Jonathan A. Parker (chair), Antoinette Schoar, Taha Choukhmane, Anna Stansbury

Abstract:

In Chapter 1, joint work with Bledi Taski, we pose the question: how do workers value retirement benefits relative to wages and what impact do these benefits have on firm hiring? We find that dollars paid in employer contributions to 401(k) plans have nearly double the effect on a firm’s recruiting success than dollars paid in wages. However, the effect is driven primarily by high-income and higher-age occupations. We use two novel instruments to identify the results: 1) IRS mandated non-discrimination testing of retirement plans and 2) corporate policies of national wage setting. We then develop and estimate an on-the-job search model which shows that the average worker requires only a 0.25 percentage point increase in employer contribution dollars to offset a 1% decrease in wages. Again, retirement valuations are positively correlated with salary. We confirm the channel in an online survey setting: participants are willing to give up total pay to get a higher employer match to get a non-matching employer-sponsored 401(k). The results imply that 80% of firms could improve their probability of a job offer being accepted by increasing 401(k) contributions.

Chapter 2, joint work with Jonathan Parker, Antoinette Schoar, and Duncan Simester, documents the share of investable wealth that middle-class U.S. investors hold in the stock market over their working lives. This share rises modestly early in life and falls significantly as people approach retirement. Prior to 2000, the average investor held less of their investable wealth in the stock market and did not adjust this share over their working life. These changes in portfolio allocation were accelerated by the Pension Protection Act (PPA) of 2006, which allowed employers to adopt target date funds (TDFs) as default options in retirement saving plans. Young retail investors who start at an employer shortly after it adopts TDFs have higher equity shares than those who start at that same employer shortly before the change in defaults. Older investors rebalance more to safe assets. We also study retirement contribution rates over the life-cycle and find that average retirement saving rates increase steadily over the working life. In contrast to what we find for investment in the stock market, contribution rates have been stable over time and across cohorts and were not increased by the PPA.

In Chapter 3, I use administrative data on very small businesses (median 5 employees) to measure the effects of the Paycheck Protection Program (PPP). Firms that applied for PPP increased employment by 7.5% relative to similar firms that did not apply. The positive effects on employment occur primarily in industries which were less affected by COVID-19: industries with more employees that are able to work remotely, those that have fewer hourly workers and essential businesses. Novel data on hiring shows that PPP worked as intended by preserving employment matches. My estimates imply a cost of approximately \$270,000 per job-year at small firms.

“Essays in Finance and Financial Markets”

Author: Jiaheng Yu (2023)

Committee: Hui Chen (co-chair), David Thesmar (co-chair), Emil Verner

Abstract:

This thesis consists of three chapters.

Chapter 1 studies the informational role of trade credit and the accounts receivable financing market. I hand collect new data on the contracts of accounts receivable based loans and trade credit terms. I find that sellers experiencing payment delays are primarily financed through accounts receivable based loans. These loans are 2- 4% per year more expensive than buyers’ borrowing rates and require a 20% average haircut on invoice value. Seller moral hazard that leads to bad-quality products is a determinant of payment delays, and although difficult to observe in existing data, can be uncovered from terms of accounts receivable based loans. Lenders help improve the quality of sellers: sellers who successfully receive credit experience a 5% decline in receivable days and have higher sales and longer relationships with buyers. I propose and structurally estimate a trade credit model that incorporates accounts receivable financing. In the model, the buyer trades off the financial cost and the incentive effect of trade credit and learns from the lender’s loan decisions. I show

through counterfactual analyses that regulatory limits on payment delays increase the presence of bad products and lower output, while subsidizing accounts receivable financing may increase output at relatively low expense.

In Chapter 2, joint work with Rodney Garratt and Haoxiang Zhu, we study the design of Central Bank Digital Currencies. Banks of different sizes respond differently to interest on reserves (IOR) policy. For low IOR rates, large banks are non-responsive to IOR rate changes, leading to weak pass-through of IOR rate changes to deposit rates. In these circumstances, a central bank digital currency (CBDC) may be used to provide competitive pressure to drive up deposit rates and improve monetary policy transmission. We explore the implications of two design features: interest rate and convenience value. Increasing the CBDC interest rate past a point where it becomes a binding floor, increases deposit rates but leads to greater inequality of market shares in both deposit and lending markets and can reduce the responsiveness of deposit rates to changes in the IOR rate. In contrast, increasing convenience, from sufficiently high levels, increases deposit rates, causes market shares to converge and can increase the responsiveness of deposit rates to changes in the IOR rate.

In Chapter 3, joint work with Jingxiong Hu, we study the effect of “guaranteed close” on the informativeness of market close prices. Passive investment strategies that trade at market close have incurred high transaction fees charged by the primary exchanges. Investment banks undercut the exchanges by executing client orders at close prices set on the exchanges yet charging lower fees. While providing liquidity, banks trade on the order flow information. Using a quasi-experimental shock – an NYSE close auction fee cut – we find that banks’ trading activities improve the informativeness of close prices and reduce the cost of passive investment strategies. To explain this finding, we propose a model where dual trading improves price discovery. A bank contributes to price discovery by trading on the informativeness of the orders it receives relative to the market. The implications of our model apply generally to scenarios with multiple trading venues where venue operators trade on order flow data.

“Essays in Finance and Climate Risks”

Author: Parinitha Sastry (2022)

Committee: David Thesmar (chair), Antoinette Schoar, Christopher Palmer

Abstract:

This thesis consists of three chapters on climate risks and financial markets. The first chapter studies how residential mortgage contracts distribute flood risk exposures across banks, households, and the government flood insurer. I find that banks offload flood risk to the government through flood insurance contracts, and to households through higher required down payments. This credit rationing shifts the composition of mortgages in flood zones towards richer and higher credit quality borrowers. The second chapter, joint with David Thesmar, Augustin Landier, and Jean-Francois Bonnefon, characterizes investors’ moral preferences in a parsimonious experimental setting, where we auction stocks with various ethical features. We find strong evidence that investors seek to align their investments with their social values (“value alignment”), and find no evidence of behavior driven by the social impact of investment decisions (“impact-seeking preferences”). The third chapter proposes a simple structural model to study substitution patterns within the class of safe and liquid assets at the extreme short-end of the yield curve. Demand system estimates suggest that treasury securities and financial commercial paper are nearly perfect substitutes

“Essays in Labor and Finance”

Author: Bryan Seegmiller (2022)

Committee: Leonid Kogan (chair), David Autor, Lawrence Schmidt

Abstract:

In chapter 1, I quantify the economic value that firms of different productivity levels derive from their labor market power by estimating the effect of unanticipated firm-level labor demand shocks on wages and employment at publicly listed U.S. firms. Productive firms face lower labor supply elasticities on average, and still lower elasticities for skilled workers, who are disproportionately employed at more productive firms. Using a dynamic wage posting model in which firms face upward-sloping labor supply and adjustment costs in hiring,

I estimate that firms in the top and bottom quartiles of labor productivity pay 62% and 94% of marginal product, despite the fact that adjustment costs temper the exercise of labor market power. Markdown differentials can explain three-fifths of the average spread in log labor shares between high- and low-labor productivity firms, and the evolution of these differentials can explain most of the change in the aggregate labor share in the 1991–2014 period. Holding constant equilibrium labor demand, I estimate that about a third of capital income for the typical firm stems from wage markdowns. Aggregate wage markdowns are worth two-fifths of total capital income.

In chapter 2, joint work with Leonid Kogan, Dimitris Papanikolaou, and Larry Schmidt, we construct new technology indicators using textual analysis of patent documents and occupation task descriptions that span almost two centuries (1850–2010). At the industry level, improvements in technology are associated with higher labor productivity but a decline in the labor share. Exploiting variation in the extent certain technologies are related to specific occupations, we show that technological innovation has been largely associated with worse labor market outcomes—wages and employment—for incumbent workers in related occupations using a combination of public-use and confidential administrative data. Panel data on individual worker earnings reveal that less educated, older, and more highly-paid workers experience significantly greater declines in average earnings and earnings risk following related technological advances. We reconcile these facts with the standard view of technology-skill complementarity using a model that allows for skill displacement.

In chapter 3, I show that stocks with similar characteristics but different levels of ownership by financial institutions have returns and risk premia that comove very differently with shocks to the risk-bearing capacity of financial intermediaries. After accounting for observable stock characteristics, excess returns on more intermediated stocks have higher betas on contemporaneous shocks to intermediary willingness to take risk and are more predictable by state variables that proxy for intermediary health. The empirical evidence supports the predictions of asset pricing models featuring financial intermediaries as marginal investors who face frictions that induce changes in their risk-bearing capacity. This suggests that such models are useful for explaining price movements not only in markets for complex financial assets, but also within asset classes where households face comparatively low barriers to direct participation.

“Essays in Financial Economics”

Author: Peter Hansen (2021)

Committee: Andrew Lo (chair), Hui Chen, Andrey Malenko, Jonathan Parker

Abstract:

Chapter 1 introduces novel preference formulations which capture aversion to ambiguity about unknown and potentially time-varying volatility. These preferences are compared with Gilboa and Schmeidler's maxmin expected utility as well as variational formulations of ambiguity aversion. The impact of ambiguity aversion is illustrated in a simple static model of portfolio choice, as well as a dynamic model of optimal contracting under repeated moral hazard. Implications for investor beliefs, optimal design of corporate securities, and asset pricing are explored.

Chapter 2 develops a method informed by data and models to recover information about investor beliefs. This approach uses information embedded in forward-looking asset prices in conjunction with asset pricing models. We step back from presuming rational expectations and entertain potential belief distortions bounded by a statistical measure of discrepancy. Additionally, this method allows for the direct use of sparse survey evidence to make these bounds more informative. Within this framework, market-implied beliefs may differ from those implied by rational expectations due to behavioral/psychological biases of investors, ambiguity aversion, or omitted permanent components to valuation. Formally, evidence about investor beliefs is represented as a nonlinear expectation function deduced using model-implied moment conditions and bounds on statistical divergence. This method is illustrated with a prototypical example from macro-finance using asset market data to infer belief restrictions for macroeconomic growth rates.

Chapter 3 develops diagnostic tools to assess whether individual factor risk premia are identified from return data. We describe a necessary and sufficient condition for population identification, which we call the kernel-orthogonality condition. This condition can be thought of intuitively as the existence of a “true” factor mimicking portfolio, and is weaker than the standard rank condition commonly assumed for linear factor models. Furthermore, this condition remains meaningful even if the factor model is misspecified, as a condition for the identification of the factor risk premium consistent with minimal pricing error. We discuss test procedures to assess identification, and provide a novel test of the kernel-orthogonality condition in reduced-rank models. Finally, we apply our test methodology to assess identification of risk premia associated with consumption growth and intermediary leverage.