Finance: Selected Doctoral Theses

“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 3 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 3 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 3 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.

“Essays in Financial Economics”
Author: Thomas Ernst (2020)
Committee: Haoxiang Zhu (chair), Leonid Kogan, Jiang Wang, Chester Spatt
Abstract:

Chapter 1 constructs a theoretical model of an ETF. Conventional wisdom warns that exchange-traded funds (ETFs) harm stock price discovery, either by ``stealing'' single-stock liquidity or forcing stock prices to co-move. Contra this belief, I develop a theoretical model that investors with stock-specific information trade both single stocks and ETFs. While the ETF is payoff-redundant, asymmetric information and a position limit for informed traders combine to make the ETF non-redundant. Single-stock investors can access ETF liquidity by means of this tandem trading, and stock prices can flexibly adjust to ETF price movements. Effects are strongest when an individual stock has a large weight in the ETF and a large stock-specific informational asymmetry. I conclude that ETFs can provide single-stock price discovery.

Chapter 2 empirically tests the predictions of the ETF model. Using high-resolution data on SPDR and the Sector SPDR ETFs, I exploit exchange latencies in order to show that investors place simultaneous, same-direction trades in both a stock and ETF. Consistent with my model predictions, effects are strongest when an individual stock has a large weight in the ETF and a large stock-specific informational asymmetry.

Chapter 3 models how risk-averse investors trade when they are uncertain about the quality of their signal. I show that when traders are risk-averse, traders can submit demands which are non-monotone in their signal. While their expected value for the asset may rise with stronger signals, so does the risk that the signal is noise. This leads to short-term behavior which is herding-like. Unlike herding, investors maintain a positive expected value for the asset, but it is their risk aversion leads them to take smaller positions, which has a similar slowing effect on price discovery.

“Essays in Financial Economics”
Author: Fangzhou Lu (2020)
Committee: Jonathan Parker (chair), Antoinette Schoar, Jennifer Carpenter, Robert Whitelaw
Abstract:

This dissertation consists of three chapters. In Chapter 1, I document that there is a high correlation between the returns of cryptocurrencies and those of utility tokens, which are claims to products and services yet to be developed that are issued through ICOs and traded on crypto-exchanges. I demonstrate the presence of a numeraire effect in the pricing of these tokens and present evidence that it is driven by a combination of group thinking and representativeness bias. Investors mistakenly overestimate the probability that a cryptocurrency-denominated token is issued by a blockchain firm, and thus believe the fundamental value of the token is correlated with that of Bitcoin. I show that a1% increase in the return on Bitcoin during the month before a token first lists on a crypto exchange predicts a 5% higher ICO return for a cryptocurrency-denominated token than for a fiat-currency-denominated token. If a token is denominated in a cryptocurrency on one exchange and its otherwise identical twin is denominated in a fiat currency on another exchange, then a 1% increase in the cryptocurrency return relative to the fiat currency predicts a 60 bp divergence in their prices.

In Chapter 2, I show that consistent with being driven by a combination of group thinking and representativeness bias, the numeraire effect is more pronounced for tokens with more complex business plans. Moreover, experimental evidence corroborates these empirical findings and suggests that the numeraire effect is present in other asset prices as well and can explain home-currency bias. The combination of high volatility and numeraire effects undermines the ability of cryptocurrencies to serve as units of account.

In Chapter 3, I demonstrate that debt owed to family and friends (DOFF) is a major component of household and entrepreneurial finance, particularly in developing countries. However, such informal finance carries with it an implicit covenant that can cause households to forgo durable-goods consumption. This is because durable-goods consumption can be perceived by the lender as a mis-use of funds and can result in social sanctions or debt recall. This paper uses China’s Vehicle Scrappage Pro-gram (VSP) as a laboratory in which to study the causal link between DOFF and consumption. Merging survey data on Chinese household balance sheets with bid prices from China’s online used-car markets, I find that DOFF on the balance sheet significantly reduces the probability that eligible households participate in the VSP and trade in their clunkers for new cars. Further, I find that this negative effect of DOFF on consumption is significantly mitigated by the presence of formal features such as a written contract, pre-determined debt repayment schedule, or positive interest rate. Together these results suggest that developing more formal channels for household finance can lead to increases in consumption. This is particularly important for developing countries such as China, where low consumption rates impede economic growth.

“Essays in Financial Economics”
Author: Maarten Meeuwis (2020)
Committee:

Jonathan Parker (chair), Antoinette Schoar, Lawrence Schmidt

Abstract:

This dissertation consists of three essays in financial economics, with a focus on household financial decisions and their implications for asset pricing and macroeconomic dynamics.

In Chapter 1, I use data on the portfolio holdings and income of millions of US retirement investors to show that positive and persistent shocks to income lead to a significant increase in the equity share of investor portfolios, while increases in financial wealth due to realized returns lead to a small decline in the equity share. In a standard homothetic life-cycle model with human capital and constant risk aversion, the portfolio responses to these two wealth shocks should be of equal magnitude and opposite sign. The positive net effect in the data is evidence for risk aversion that decreases in total wealth.

In Chapter 2, I show that decreasing relative risk aversion preferences have significant long-run implications for inequality and asset prices. I estimate the structural parameters of a life-cycle consumption and portfolio choice model that accounts for inertia in portfolio rebalancing. The model matches reduced-form estimates of the portfolio responses to wealth shocks with a significant degree of non-homotheticity in risk preferences, such that a 10%permanent income growth leads to a decrease in risk aversion by 1.7%. I find that decreasing relative risk aversion in the model doubles the share of wealth at the top, as equity is concentrated in the hands of the wealthy. The model also implies that rising income inequality in the US has led to a 15% decline in the equity premium over the past three decades.

In joint work with Jonathan Parker, Antoinette Schoar, and Duncan Simester, we document in Chapter 3 how agents who believe in different models of the world change their investment behavior differently in response to a public signal. We use a proprietary dataset of the portfolio holdings of millions of US households and identify households ex ante that hold different models of the world using political party affiliation (probabilistically inferred from zip code). Our public signal is the unexpected outcome of the US national election of 2016. Relative to Democrats, Republican investors actively increase the equity share and market beta of their portfolios following the election. The rebalancing is due to a small share of investors making large adjustments. We conclude that this behavior is driven by belief heterogeneity because of extensive controls for differential hedging needs or preferences, including detailed controls for age, wealth, income, state, and even county-employer fixed effects.

"Essays in Financial Economics"
Author: Alexis Montecinos (2019)
Committee: Deborah J. Lucas (chair), Robert Merton, Daniel Greenwald
Abstract:

This dissertation consists of three essays on financial economics, specifically focusing on the role of government banks in the aggregate economy and in the role of capital utilization to determine leverage. The first essay shows the empirical relevance of state-owned banks nowadays and their implications for economic growth. I show using a new data set for government ownership of banks in 2017, that government banks are still pervasive and a big player in the financial market around the world. These still account in average for twenty percent of the total assets of the top ten banks in every country in 2017. Their effect in the GDP growth depends strongly on the existent heterogeneity of the countries under study, particularly the final effect is related to how deep the financial market is, measured as the private credit over GDP and how good the country's institutional background is, measured using either the democracy index or the political rights index. Therefore, depending on what stage of development the country is in terms of its access to the financial market and the quality of its government institutions, government banks can either be an engine for economic growth or a source of deterioration in the long-run development.

The second essay studies the role of government banks in a dynamic stochastic general equilibrium (DSGE) model with heterogeneous financial intermediaries and heterogeneous households. In accordance with the empirical literature on the subject, this study shows that the presence of government-owned banks alters the reaction of the aggregate variables to negative shocks relative to standard DSGE models. Those results depend on the trade-off between the cycle stabilization goal of the government and the degree of inefficiency inherent to state-owned banks. When the first goal is predominant over the degree of inefficiency in government banks, the economy is able to recover faster following negative shocks due to the less procyclical behavior of these institutions. The paper shows that ignoring the heterogeneity that exist between private and government banks may render misleading assessments and conclusions regarding economic variables, such as GDP, consumption, investment, labor, etc. This is particularly important to evaluate the effectiveness of the macroprudential policy into the economy.

The third essay, based on joint work with Diogo Duarte and Hamilton Galindo, we document the relation between capital utilization and leverage and explain how this can be a key factor in the determination of short-term debt. The essay documents procyclical behavior between capital utilization and short-term debt.

This strong positive relationship persists even when we control the regressions for firm size, profits, and growth, attesting to the robustness of our findings. In addition, our analysis of the time series and panel data shows that the relationship is present at both the aggregate and firm levels. Based on this empirical finding, we develop a DSGE model that sheds light on the role of capital utilization in propagating real and financial shocks to financial assets. We show that in the presence of capital utilization, positive real and financial shocks cause the firm to change its financing of the equity payout policy from earnings to debt, resulting in an increase in short-term debt. Therefore, ignoring the firm's optimal decision on capital utilization may lead to misleading conclusions on how leverage is undertaken.