Finance: Selected Doctoral Theses

TITLE:

> **"Essays in Financial Economics"** – 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.

TITLE:

    "Essays in Financial Economics" – 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.

TITLE:

    "Essays in Financial Economics" -- 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.

TITLE:

"Essays on Empirical Asset Pricing" -- Yixin Chen (2018)

COMMITTEE:

Leonid Kogan (co-chair), Jonathan Parker (co-chair), Hui Chen

ABSTRACT:

Chapter 1 shows that, for active mutual funds, historical in-sample alpha is a poor predictor of out-of-sample alpha. However, by focusing on a subset of skilled managers who are able to generate positive alpha via profitable bets on firm specific risks (stock-picking), I show that a new first-order stochastic dominance (FSD) condition can be employed as an additional search criterion to identify such skilled stock-pickers. I implement an FSD filter to select funds by bootstrapping the return distribution in a given period associated with a random stock-picking strategy that has a given factor exposure and degree of diversification. Simulations show that the identification of funds as skilled by the FSD filter performs well in finite samples, in the face of heteroscedasticity and benchmark mis-specification. With the new FSD filter, I identify a group of active funds that are able to outperform the Carhart benchmark by 2.04% (t=2.78) per year before fees (0.78% (t=1.07) per year after fees) out

of sample. Moreover, in this sample of funds, in-sample alpha is significantly predictive of out-of-sample alpha: the top quintile of stock-picking mutual funds deliver an out-of-sample alpha of 3.55% (t=3.24) per year before fees (2.24% (t=2.05) per year after fees). These outperforming funds tend to be more aggressive stock-pickers (hold more concentrated portfolios), charge higher fees, and attract more fund flows.

By exploring mutual fund managers' Herding tendency and Trading Intensity, Chapter 2 develops a systematic approach to identify mutual fund managers with the Warren Buffett style, i.e. managers who are fundamental, long-term, value investors. Using data during 1995-2015, I further show that the group of such managers outperformed the Carhart four-factor benchmark by 3.06% (t = 3.58) per year before fees (1.94% (t = 2.35) per year after fees). Moreover, these managers have both statistically and economically high exposures to AQR's Quality Minus Junk (QMJ) factor. Last but not least, I show that their before-fees performances can be almost perfectly replicated by an investor who implements the strategy of investing in the lagged portfolio holdings of these managers when they become publicly available.

Chapter 3 proposes a methodology to recover countries' stochastic discount factors (SDFs) from exchange rates under three assumptions: 1) the Euler equation holds internationally; 2) there is a factor structure among exchange rates; 3) there does not exist a special global risk factor which has identical influence on all countries. By designing an empirical test using exchange rates and equity returns of 28 countries from 1988 to August of 2014, I show that the moment conditions are rejected in the data. The failure of the exchange-rate-recovered SDFs to price countries' assets reflects the violation of my assumptions, and highlights the importance of the special global risk factor to price assets in different countries.

TITLE:
    "Essays in Financial Economics" -- Hyungjune Kang (2018)
COMMITTEE:
    Andrey Malenko (chair) Deborah Lucas, Haoxiang Zhu
ABSTRACT:

In the first chapter, I analyze a dynamic game in which a sender of unknown quality persuades a receiver by designing an experiment (model) that transforms signals into recommendations (messages). When the receiver learns the sender's quality by observing the sender's past recommendations and realized events, I show that, due to reputational concern, the sender chooses an experiment that limits the amount of information. A more patient sender is less likely to devise an informative experiment. I also demonstrate that the quality of the sender-optimal experiment-measured by the amount of information-is not monotonic in the sender's quality. The framework can be applied to various settings including financial regulation and analyst forecasting.

In the second chapter, based on joint work with Tetsuya Kaji, we study how Value-at- Risk (VaR) constraint affects the amount of information that price conveys in an economy with asymmetric information. We first show that VaR constraint is different from others (e.g. borrowing and short-sale constraints) in that VaR constraint is relevant only when price is moderate. We find that when some investors follow a VaR rule, realistically high or low prices reveal more information than intermediate prices. We illustrate how the presence of VaR investors affects other investors' incentive to acquire information.

In the third chapter, based on joint work with Tetsuya Kaji, we propose a class of risk measures called the tail risk measures that establish the upper bounds below which the quantities of interest fall with probability at least as much as a pre-specified confidence level. We show that a simple rule based on the Bonferroni inequality can control a tail risk measure at a desired level even when the

true risk is unknown and needs to be estimated. Most popular risk measures such as Value-at-Risk and expected shortfall are interpreted as tail risk measures. Empirical applications illustrate how the proposed concept can be applied to practical risk control problems.

TITLE:
>   **"Essays in Financial Economics"** -- Winston (Wei) Dou (2017)

COMMITTEE:
>   Antoinette Schoar (chair), Jonathan Parker, Deborah Lucas

ABSTRACT:
This thesis consists of three essays that theoretically and empirically investigate the asset pricing and macroeconomic implications of uncertainty shocks, propose new measures for model robustness, explain the joint dynamics on equity excess returns and real exchange rates. In the first chapter, I show that the effect of uncertainty shocks on asset prices and macroeconomic dynamics depends on the degree of risk sharing in the economy and the origin of uncertainty. I develop a general equilibrium model with imperfect risk sharing and two sources of uncertainty shocks: (i) cash-flow uncertainty shocks, which affect the idiosyncratic volatility of firms' productivity, and (ii) growth uncertainty shocks, which affect the idiosyncratic variability of firms' investment opportunities. My model deviates from the neoclassical setting in one respect: firms' investment policies are set by the experts who are subject to a moral hazard problem and thus must maintain an non-diversified ownership stake in the firm. As a result, risk sharing between experts and other investors is imperfect. Limited risk sharing distorts equilibrium investment choices, firm valuation, and prices of risk in equilibrium relative to the frictionless benchmark. In the calibrated model, the risk premium on growth uncertainty shocks is negative under poor risk sharing conditions and positive otherwise. Moreover, the cross-sectional spread in valuations between value and growth stocks loads positively on the growth uncertainty shocks under poor risk sharing conditions and negatively otherwise. Empirical tests support these predictions of the model.

The second chapter is based on the joint work Chen, Dou, and Kogan (2015), in which we propose a new quantitative measure of model fragility, based on the tendency of a model to over-fit the data in sample with poor out-of-sample performance. We formally show that structural economic models are fragile when the cross-equation restrictions they impose on the baseline statistical model appear excessively informative about combinations of model parameters that are otherwise difficult to estimate. We develop an analytically tractable asymptotic approximation to our fragility measure which we use to identify the problematic parameter combinations. Using these asymptotic results, we diagnose fragility in asset pricing models with rare disasters and long-run consumption risk.

The third chapter is based on the joint work Dou and Verdelhan (2015), which presents a two-good, two-country real model that replicates the basic stylized facts on equity excess returns and real interest rates. In the model, markets are incomplete. In each country, workers cannot participate in financial markets whereas investors trade domestic and foreign stocks, as well as an international bond. The investors' asset positions are subject to a borrowing constraint, along with a short-selling constraint on equity. Foreign and domestic agents differ in their elasticity of inter temporal substitution and in their risk-aversion. A time-varying probability of a global disaster implies time-varying risk premia in asset markets, and therefore large and time-varying expected valuation effects on international asset positions. The model highlights the role of market incompleteness and heterogeneity across countries in accounting for the volatility of equity and debt international capital flows.