

Finance: Selected Doctoral Theses

TITLE:

“Essays on Empirical Asset Pricing” – Yixin Chen (2018)

COMMITTEE:

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

ABSTRACT:

This dissertation consists of three chapters. 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:

This thesis consists of three chapters. 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 a 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.

TITLE:

“Essays in Financial Economics” – Asaf Bernstein (2016)

COMMITTEE:

Antoinette Schoar (chair), Jonathan Parker, Deborah Lucas

ABSTRACT:

This thesis consists of three empirical essays in financial economics that explore the role financial regulation can play in firm, household, and investor decision making.

In the first chapter for households with homes worth less than the mortgage I test the effect of “household debt overhang” on their labor supply decisions. I utilize a new transaction-level dataset with comprehensive information on assets, liabilities, and deposits for all customers of a major U.S. financial institution from 2010-2014. I then exploit plausibly exogenous variation in the timing of home purchases among households in the same region and time as an instrument for the probability of negative home equity and find that negative equity causes a 2%-6% reduction in household labor supply. These results are robust to the inclusion of time-varying national cohort fixed effects as well as using a life-event driven proxy for the timing of home purchase based on the date of college attendance. Income-contingent loss mitigation creates implicit marginal tax rates that provide a plausible channel by which household debt overhang acts. Consistent with this explanation I find that the labor supply decline is larger in regions where mortgage modifications are more prevalent, even if foreclosures occur less frequently. Taken together these results provide evidence that the moral hazard problem caused by mortgage debt overhang can exacerbate employment declines and highlights the potential unintended consequences of mortgage assistance programs.

In the second chapter I investigate whether restrictions on bank speculation can be costly for non-financial firms by examining the unexpected inception of federal rating-contingent investment restrictions in 1936 preventing banks from purchasing speculative grade securities. Immediately following the ruling I find a persistent 3-5% equity value decline for firms requiring speculative financing, concentrated in industries reliant on external financing, but no change in bond yields. Rather than face increases in default risk or direct interest costs these firms reduce debt issuances to improve ratings, leading to reduced investment and asset growth in the years following the ruling.

In the third chapter (co-authored with Eric Hughson and Marc Weidenmier) we explore the role clearinghouses play in global financial stability. Empirical identification of the effect of centralized clearing on counterparty risk is challenging because of the co-incidence of macro-economic turbulence and the introduction of clearinghouses. We overcome these concerns by examining a novel historical experiment, the establishment of a clearinghouse on the New York Stock Exchange (NYSE) in 1892. During this period the largest NYSE stocks were also listed on the Consolidated Stock Exchange (CSE), which already had a clearinghouse. Using identical securities on the CSE as a control, we find that the introduction of clearing reduced annualized volatility of NYSE returns by 90-173bps and increased asset values. Prior to clearing, shocks to overnight lending rates reduced the value of stocks on the NYSE, relative to identical stocks on the CSE, but this was no longer true after the establishment of clearing. We also show that at least $\frac{1}{2}$ of the average reduction in counterparty risk on the NYSE is driven by a reduction in contagion risk – the risk of a cascade of broker defaults. Our results indicate that clearing can cause a significant improvement in market stability and value through a reduction in network contagion and counterparty risk.

TITLE:

"Essays in Financial Economics" – Richard Thakor (2016)

COMMITTEE:

Nittai Bergman (chair), Rajkamal Iyer, Andrew Lo, Robert Merton, Stewart Myers

ABSTRACT:

In the first chapter, I examine how financial constraints affect asset allocation, and consequently productivity and asset values. Using a unique dataset of agricultural outcomes, I explore how farmers respond to exogenous cash inflows that are caused by an expansion of hydraulic fracturing (fracking) leases. Farmers who receive positive cash flow shocks increase their purchases of land, which results in a reallocation effect. Examining cross-county purchases, I find that farmers in high-productivity counties who receive cash flow shocks buy farmland in low-productivity counties. In contrast, when farmers in low-productivity counties receive positive cash flow shocks, they do not engage in similar behavior. Moreover, farmers increase their purchases of vacant (undeveloped) land. Average output, productivity, and profits all increase following these positive cash flow shocks, and farmland prices rise significantly. These effects are broadly consistent with an efficient reallocation of land towards more productive users. Finally, I show that farmers borrow relatively less following the cash flow shock.

In the second chapter, I develop and empirically test a dynamic sequential equilibrium model of corporate cash payout policy that endogenizes a firm's dividend initiation decision, and its extreme reluctance to subsequently cut dividends in a sequential equilibrium. After payment of dividends, all excess cash is disgorged via stock repurchases that elicit no price reactions. The theoretical model generates results consistent with many stylized facts related to dividend initiations, including: a positive dividend-initiation announcement effect; a larger (in absolute value) negative announcement effect for a dividend cut/omission than for an initiation; and a probability of dividend initiation that is increasing in the firm's profitability and assets in place, and decreasing in the personal tax rate on dividends relative to capital gains. The model also generates additional novel predictions: (i) the probability of dividend initiation is decreasing in managerial ownership of the firm, and this effect is stronger the weaker is (external) corporate governance; (ii) the dividend initiation probability is decreasing in the potential loss in value from the "two-audience-signaling" information disclosure costs associated with secondary equity issues. These new predictions are tested empirically using panel data through a predictive logit model of dividend initiations, and additional empirical support for the information-disclosure result is found using a regression discontinuity design.

In the third chapter, I develop a theory in which the owners of firms pursue short-termism in project choice to limit managerial rent-seeking behavior. Unlike in previous theories, a short-term bias in investment horizons maximizes firm value in the second-best case, whereas managers themselves prefer long-horizon projects. Short-termism benefits the firm in two ways: it limits managerial rent extraction by preventing investments in bad projects that delay information revelation about project quality and managerial ability, and it enables faster learning about managerial ability which allows more efficient subsequent decisions. This result does not depend on any stock mispricing or managerial desire to use earnings management in order to manipulate stock prices. The likelihood of short-termism is higher when corporate governance is stronger, and at lower levels of the corporate hierarchy. Numerous testable predictions of the analysis are discussed.