Literature Overview
Structural Estimation in Corporate Finance

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Overview

Goals

- ▶ Describe what research has already been done
- ▶ Speculate about good areas for future research
- ▶ Give advice on doing structural estimation research

Plan for this session:

- ▶ Part 1: Broad, shallow survey of the literature
- ▶ Part 2: Deep dives on three papers:
  - ▶ Taylor, 2010, "Why are CEOs rarely fired? ..."
  - ▶ Dou, Taylor, Wang, Wang, 2021, "Dissecting bankruptcy frictions"
  - ▶ Wang, Whited, Wu, Xiao, 2022, "Bank market power..."

Part 1: Broad, shallow survey

Disclaimers

► We tried to find all publications using structural estimation in corp. fin.
► We probably missed some papers. Sorry if we missed yours! (And please let us know.)
► We excluded
  ► Working papers
  ► Papers outside certain top finance and economics journals
  ► Methodological papers
  ► Papers not about corporate finance
  ► Papers that calibrate rather than estimate
  ► Papers discussed elsewhere during the summer school

(Big thanks to Ellen Longman, Mahdi Shahrabi, and others for his help with this survey)

Corporate finance topics

Topic	#2021	#2023
Investment, capital structure, financing policy	22	29
Corporate governance	14	17
Corporate control (M&A, activism, blockholders)	11	13
Banks, financial institutions, crises	13	23
Household finance	5	8
Entrepreneurship and innovation	5	8
Real estate finance	4	6
Labor and finance	2	4
Bankruptcy	3	4
Total	**79**	**112**

On the way up!

Structural papers in top journals in
corporate/banking/household/real estate
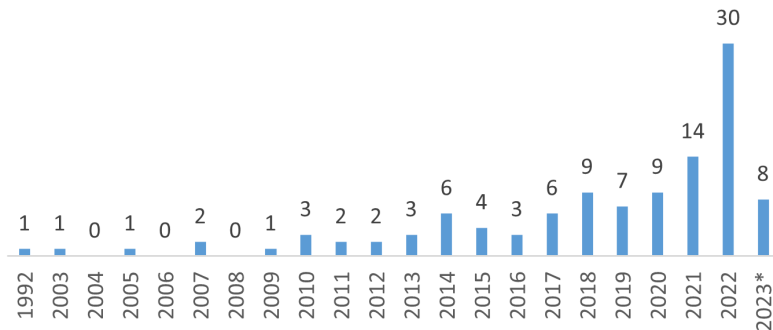
* Year to date

Many PhDs placing well with structural JMPs

Job Market Candidate	Year	Placement	Topic
Arthur Taburet	2023	Duke	Mortgage lending
Lulu Wang	2023	Northwestern	Credit card market
Tong Liu	2022	MIT	Healthcare and PE
Mehran Ebrahimian	2021	Stockholm	Student loans
Sam Antill	2020	HBS	Corporate bankruptcy
Sophie Calder-Wang	2020	Wharton	Sharing economy
Taha Choukhmane	2020	MIT	Retirement savings
Erica Jiang	2020	USC	Shadow banks
Greg Buchak	2019	Stanford	Gig economy
Claudia Robles-Garcia	2019	Stanford	Mortgage market
Matteo Benneton	2018	Berkeley	Mortgage market
Sylvain Catherine	2018	Wharton	Entrepreneurship
Daniel Green	2018	HBS	Debt covenants
Yiming Ma	2018	Columbia	Interbank lending market
Scott Nelson	2018	Chicago	Credit card market
Kairong Xiao	2017	Columbia	Shadow banks

Authors (Year)

"Paper title" (Journal)

| Economic question | ... |

| Main results | ... |

| Also interesting | ... |

| Estimator | .. |

| Data | ... |

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Toni M. Whited. Debt, liquidity constraints, and corporate investment: Evidence from panel data.

Journal of Finance, 47:1425–1460, 1992

Economic question	Do financing constraints matter for corporate investment?
Main results	Investment Euler equation fits data better if we include a debt constraint $\Rightarrow$ debt constraints distort corporate investment.

Also interesting	Model without constraints:
	  Fits OK for firms with low a priori constraints
	  Fits badly for firms with high a priori constraints
	Related paper: Bond and Meghir (1994)

Estimator	GMM
Data	Compustat (1975-1986), bond ratings, capital stock, debt/assets ratio, interest coverage ratio, rates of investment, sales growth, cash flow

Inessa Love. Financial development and financing constraints: International evidence from the structural investment model.

Review of Financial Studies, 16(3):765–791, 2003

Economic question	How much does financial development impact growth?
Main results	Financial development reduces financing constraints and thereby improves allocation of investment.
Also interesting	"small firms are disproportionately more disadvantaged in less financially developed countries than are large firms"
Estimator	GMM
Data	Worldscope database (1988-1998); Standard accounting variables + development variables (stock market development, financial intermediary development, country's legal origin, efficiency of legal system)

Christopher A. Hennessy and Toni M. Whited. Debt dynamics.

Journal of Finance, 60(3):1129–1165, 2005

Economic question	Does a dynamic trade-off model explain debt dynamics?

Main results	Yes. It can explain several stylized facts: "there is no target leverage ratio, firms can be savers or heavily levered, leverage is path dependent, leverage is decreasing in lagged liquidity...."

Also interesting	Model provides good alternative to competing theories (pecking order, market timing, behavioral). Estimated cost of external equity finance is a modest 5.9%, consistent with existing evidence on underwriting fees.

Estimator	SMM

Data	Compustat (1993-2001); Investment, equity issuance, profitability, cash flows, Tobin's q, leverage

Christopher A. Hennessy and Toni M. Whited. How costly is external financing? Evidence from a structural estimation.

Journal of Finance, 62(4):1705–1745, 2007

Economic question	How costly is external financing? How well do popular proxies for financing constraints work?
Main results	Estimated marginal equity issuance costs: 5.0% for large firms, 10.7% for small firms. Estimated bankruptcy costs: 8.4% (15.1%) of capital. "In simulated data, many common proxies for financing constraints actually decrease when we increase financing cost parameters." (ZING!)
Estimator	SMM
Data	Compustat (1988-2001); Investment, equity issuance, cash flow, Tobin's q, operating income, leverage

Harry DeAngelo, Linda DeAngelo, and Toni M. Whited. Capital structure dynamics and transitory debt.

Journal of Financial Economics, 99(2):235–261, 2011

Economic question	How does transitory debt influence capital structure dynamics?

Main results	Adding transitory debt to a dynamic capital structure model:
	    Helps explain industry leverage.
	    Helps explain debt issuances/repayments.
	    Accounts for leverage changes around investment "spikes".

Also interesting	Message: "Firms deliberately but temporarily deviate from permanent leverage targets by issuing transitory debt to fund investment."
Estimator	SMM
Data	Compustat (1988-2001); Leverage, investment, equity issuance, Tobin's q, income, cash

Chen Lin, Yue Ma, and Yuhai Xuan. Ownership structure and financial constraints: Evidence from a structural estimation.

Journal of Financial Economics, 102:416–431, 2011

Economic question	How does the divergence between corporate insiders' control and cash-flow rights affect external finance constraints?
Main results	"Shadow value of external funds is significantly higher at companies with a wider divergence between corporate insiders' control rights and cash-flow rights."
Also interesting	Estimates investment Euler equation. "Information opacity increases the effect of insider excess control rights on finance constraints," and institutional ownership reduces it.
Estimator	GMM
Data	1994-2002; New data set on insider ownership structure + standard accounting variables

Gregor Matvos. Estimating the benefits of contractual completeness.

Review of Financial Studies, 26(11):2798–2844, 2013

| Economic question | What are the benefits of having covenants in debt contracts? |

| Main results | "Leverage and interest-rate covenants produce the largest benefits, lending quantitative credence to several standard theories of covenants. Once covenants are chosen, the benefits from fine-tuning them are small, thus rationalizing 'boilerplate' covenants." |

| Also interesting | Not fully structural $\rightarrow$ more robust to model misspecification. |

| Estimator | Two-step + GMM + instruments |

| Data | Dealscan, Compustat; detailed data on debt characteristics (e.g. spreads, maturity, covenants) and firm characteristics (e.g. investment, earnings) |

Gregor Matvos and Amit Seru. Resource allocation within firms and financial market dislocation: Evidence from diversified conglomerates.

Review of Financial Studies, 27:1143–1189, 2014

Economic question	"Do firm boundaries mediate the effect of shocks to the financial intermediation sector?"
Main results	Yes. "Resource allocation within firms' internal capital markets provides an important force countervailing financial market dislocation."
Also interesting	In the financial crisis, internal capital markets offset financial market stress by 16%-30%.
Estimator	2-step estimator of Bajari, Benkard, and Levin (2007)
Data	Compustat division-level data (1980-2009); sales, assets, capital expenditures, operating profits, depreciation

Boris Nikolov and Toni M. Whited. Agency conflicts and cash: Estimates from a dynamic model.

Journal of Finance, 69:1883–1921, 2014

Economic question	"Which agency problems affect corporate cash policy?"
Main results	"Perquisite consumption critically impacts cash policy. Size-based compensation also matters, but less."
Also interesting	Relates managers' perquisite consumption to lower blockholder and institutional ownership. Can explain the upward trend in cash holdings with low managerial ownership.
Estimator	SMM
Data	ExecuComp, Compustat (1992-2008); accounting variables, executive compensation, institutional ownership and blockholders

Ryan Kellogg. The effect of uncertainty on investment: Evidence from Texas oil drilling.

American Economic Review, 104(6):1698–1734, 2014

| Economic question | Does corporate investment line up with real options theory? |

| Main results | The quantitative relation between drilling and oil price volatility is consistent with theory. |

| Also interesting | The cost of not responding to volatility shocks is large. |

| Estimator | MLE + nested fixed point routine |

| Data | Texas Railroad Commission and RigData (1993-2003) |

Missaka Warusawitharna and Toni M. Whited. Equity market misvaluation, financing, and investment.

Review of Financial Studies, 29:603–654, 2016

Economic question	How does equity mispricing affect investment, equity, cash, and debt?
Main results	"(M)isvaluation induces larger changes in financial policies than investment.... Managers' rational responses to misvaluation increase shareholder value by up to 4%."
Also interesting	Find significant amount of misvaluation, especially where we expect to find it. Several out-of-sample tests of external validity, e.g., relating long-run abnormal returns to equity issuance.
Estimator	SMM
Data	Compustat, CRSP, SDC (1994-2013); Total assets, investment, cash and equivalents, operating income, dividends, debt, Tobin's q...

Shaojin Li, Toni M. Whited, and Yufeng Wu. Collateral, taxes, and leverage.

Review of Financial Studies, 29:1453–1500, 2016

Economic question	Quantitatively, how important are collateral and taxes for capital structure?
Main results	"(L)everage stays a safe distance from (collateral) contraint." Cost of lost borrowing flexibility: 7% of assets. "Models with different tax rates fit data equally well."
Also interesting	Tests of external validity: (1) collateral parameter is correlated to asset tangibility across industries (2) natural experiment that shocked collateral values
Estimator	SMM
Data	Compustat (1965-2012); assets, operating income, equity repurchases, dividends, capex

Tor-Erik Bakke and Tiantian Gu. Diversification and cash dynamics.

Journal of Financial Economics, 123(3):580–601, 2017

Economic question	"Why do diversified firms hold significantly less cash than focused firms?"
Main results	"Investment dynamics are more important in explaining the cash differences than financing frictions."
Also interesting	"Endogenous selection (diversifying firms are larger and have better growth opportunities) accounts for 68% of the cash difference, and the diversification event itself reduces cash holdings by 32%."
Estimator	SMM
Data	Compustat segments file (1990-2013); cash, size, Tobin's q, number of segments, cash flow, investment, external finance, leverage, diversification

Tiantian Gu. U.S. multinationals and cash holdings.

Journal of Financial Economics, 125:344–368, 2017

Economic question	Why do U.S. multinational firms hold more cash than domestic firms?
Main results	Repatriation costs (taxes) explain 42% of the gap. Differences in capital intangibility explain 28% of the gap.
Also interesting	For regulators: Tightening corporate inversion requirements would save the U.S. Treasury ∼$900M per year.
Estimator	SMM
Data	Compustat (2001-2009); Assets, sales, cash, cash flow, R&D, intangible capital, intangible investments, patents, external finance, investment, Tobin's Q, foreign sales, tax costs of repatriation

Ying Fan, Kai-Uwe Kuhn, and Francine Lafontaine. Financing constraints and moral hazard: The case of franchising.

Journal of Political Economy, 125(6):2082–2125, 2017

Economic question	How does housing wealth affect organizational form and investment in the context of franchising?
Main results	Housing collateral aligns incentives between franchisee and franchisor. Implications during the Great Recession: Chains start franchising later, and chains open fewer outlets.
Also interesting	Identification similar to diff-in-diff.
Estimator	Simulated MLE
Data	Annual Franchise 500, Bond's Franchise Guide

Yufeng Wu. What's behind smooth dividends? Evidence from structural estimation.

Review of Financial Studies, 31(10):3979–4016, 2018

Economic question	What fraction of dividend smoothing is due to career concerns? What fraction is due to rational signaling?
Main results	39% of observed dividend smoothness among U.S. firms is driven by managers' own career concerns This agency issue leads to a 2% drop in firm value
Also interesting	In actual and simulated data, changes in dividends are a strong predictor of manager turnover.
Estimator	SMM
Data	Compustat, Equilar, Execucomp

Boris Nikolov, Lukas Schmid, and Roberto Steri. Dynamic corporate liquidity.

Journal of Financial Economics, 132:76–102, 2019

Economic question	How do firms manage liqudity, i.e. cash and credit lines?
Main results	Firms use cash and credit lines to absorb shocks. Model can fit "joint dynamics of cash, credit lines, leverage, equity financing, and investment...."
Also interesting	Cross section: Model helps explain credit line usage, covenant violations, cash holdings.
Estimator	SMM
Data	Capital IQ, Compustat (2002-2011); Leverage, credit line, tangibility, market value, cash, long-term debt, credit line limit

Xiaodan Gao, Toni M. Whited, and Na Zhang. Corporate money demand.

Review of Financial Studies, 34(4):1834–1866, 2020

Economic question	Why do corporate cash holdings have a hump-shaped relation with nominal and real interest rates. Why?
Main results	Cash rises with interest rates when rates are low. A rise in rates tanks value, hikes default risk, and spurs precautionary savings.
Also interesting	Implies weakened monetary policy at low rates (flat money demand curve.) Interest rates cannot have been an important force behind the run-up in corporate cash balances since 1980.
Estimator	SMD
Data	Aggregate interest rate data and Compustat (1970-2017), debt/assets ratio, cash/assets ratio, rates of investment, profits/assets

Murray Z Frank and Ali Sanati. Financing corporate growth.

The Review of Financial Studies, 34(10):4926–4998, 2021

Economic question	Is corporate asset growth financed more by equity or debt? Why?
Main results	Equity issuance accounts for more. Firms hug a collateral constraint, so equity is all that is left.
Also interesting	Equity issuance is defined as book equity, so "issuance" is largely "profits." "Firms issue equity first, then increase real assets, and, finally, issue debt while repurchasing equity." Model can explain this pattern.
Estimator	SMM
Data	Flow of funds, Compustat

Juliane Begenau and Bernardino Palazzo. Firm selection and corporate cash holdings.

Journal of Financial Economics, 139(3):697–718, 2021

Economic question	How much does industry composition account for the upward trend in corporate cash holdings among US public firms?
Main results	Precautionary savings by young, R&D-intensive firms explains ∼50% of the increase. Selection more important than within-firm effects for change in average cash holdings.
Also interesting	Selection also explains increased sales volatility.
Estimator	SMM
Data	Compustat

Toni M Whited and Jake Zhao. The misallocation of finance.

The Journal of Finance, 76(5):2359–2407, 2021

Economic question	Are the right firms getting the right amount of finance, and is the mix of debt and equity optimal?
Main results	Financial liabilities are well-allocated in the U.S. In China, reallocating liabilities to the right firms would result in 51%–69% gains in real firm value-added.
Also interesting	Costs of misallocation are less for larger firms in more developed cities. The results are not concentrated in the large number of extremely small Chinese firms in the sample.
Estimator	Production function estimation
Data	Chinese establishment level data and Compustat: debt, equity, assets, and output

Boris Nikolov, Lukas Schmid, and Roberto Steri. The sources of financing constraints.

Journal of Financial Economics, 139(2):478–501, 2021

Economic questions	Which theory of financing frictions (i.e. a trade-off model, limited commitment, or moral hazard) best describes actual behavior of companies in the data? Are these frictions different for private and public firms?
Main results	Trade-off models for larger Compustat firms, limited commitment models for smaller firms, and moral hazard models for private firms.
Also interesting	They compare empirical policy functions and consider combinations of models via Bayesian model averaging.
Estimator	Indirect Inference
Data	Compustat, Orbis

Frederico Belo, Vito D Gala, Juliana Salomao, and Maria Ana Vitorino. Decomposing firm value.

Journal of Financial Economics, 143(2):619–639, 2022

| Economic question | How much do different factors of production contribute to firm value? |

| Main results | Installed labor: 14–21%
 Physical capital: 30–40%
 Knowledge capital: 20–43%
 Brand capital: 6–25% |

| Also interesting | The importance of physical capital for firm value has significantly decreased in recent years, while the importance of intangible capital has significantly increased.
 Model fits the data remarkably well; 95% cross-sectional R^2 |

| Estimator | GMM |

| Data | CRSP, Compustat |

Sylvain Catherine, Thomas Chaney, Zongbo Huang, David Sraer, and David Thesmar. Quantifying reduced-form evidence on collateral constraints.

The Journal of Finance, 77(4):2143–2181, 2022

Economic question	How large are the aggregate effects of financing constraints?

Main results	Collateral constraints induce losses of 7.1% for output and 1.4% for total factor productivity (TFP).

Also interesting	Output loss can be broken down into three channels: (i) TFP loss (misallocation), (ii) lower capital stock, and (iii) employment loss

Estimator	SMM

Data	Compustat

Hui Chen, Yu Xu, and Jun Yang. Systematic risk, debt maturity, and the term structure of credit spreads.

Journal of Financial Economics, 139(3):770–799, 2021

Economic question	What explains the cyclical variations in corporate debt maturity? How do the maturity dynamics differ across firms? How do they affect corporate bond pricing?
Main results	Firms with higher systematic risk exposure choose longer debt maturity and maintain a more stable maturity structure over the business cycle. When macroeconomic conditions worsen (e.g., during recessions), average debt maturity shortens, while the cross-sectional relation between a firm's systematic risk exposure and debt maturity steepens.
Also interesting	
Estimator	GMM
Data	Compustat, CRSP

Sebastian Gryglewicz, Loriano Mancini, Erwan Morellec, Enrique Schroth, and Philip Valta.

Understanding cash flow risk.

The Review of Financial Studies, 35(8):3922–3972, 2022

Economic question	Do corporate policies depend on firms' exposure to short- and long-lived cash flow shocks and the correlation between shocks?
Main results	The estimates of short- and long-term shock volatilities and of the correlation between shocks explain corporate liquidity management policies better than usual risk proxies.
Also interesting	The estimated correlation between permanent and short-term shocks is a powerful indicator of within-industry differences in risk taking.
Estimator	MLE
Data	Compustat

Jakub Hajda and Boris Nikolov. Product market strategy and corporate policies.

Journal of Financial Economics, 146(3):932–964, 2022

| Economic question | How does the product life cycle affect investment and financing? |

| Main results | When the product portfolio ages, firms preserve debt capacity. |

| Also interesting | Product introductions and capital investment are complements. Product dynamics incentivize preserving more debt capacity. |

| Estimator | SMM |

| Data | Compustat plus Nielsen scanner data |

Juliana Salomao and Liliana Varela. Exchange rate exposure and firm dynamics.

The Review of Economic Studies, 89(1):481–514, 2022

Economic question	What affects firms' decisions to borrow in foreign currency?
Main results	Foreign currency borrowing arises from a dynamic trade-off between exposure to currency risk and growth.
Also interesting	Understanding the characteristics of firms that borrow in foreign currency is critical to assess the aggregate consequences of this financing.
Estimator	SMM
Data	APEH and KHR-Credit Registry provided by National Bank of Hungary

Adam Hal Spencer. Policy effects of international taxation on firm dynamics and capital structure.

The Review of Economic Studies, 89(4):2149–2200, 2022

Economic question	What are the policy effects of international taxation on firm dynamics and capital structure?
Main results	The repatriation tax removal in the Tax Cuts and Jobs Act (TCJA) benefited multinationals, lowered exports, boosted output, and raised welfare (at little cost to the Treasury).
Also interesting	Financial frictions significantly slowed the expansion of multinationals.
Estimator	SMM
Data	Compustat

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George-Levi Gayle and Robert A. Miller. Has moral hazard become a more important factor in managerial compensation?

American Economic Review, 99(5):1740–1769, 2009

Economic question	Why has CEO compensation increased so much in recent decades? Is it caused by an increase in conflicts of interest.

Main results	Increased average firm size is the culprit, with two mechanisms. Large firms have more manager-shareholder conflicts. Larger firms require more expertise.

Also interesting	They measure substantial welfare losses stemming from agency issues.

Estimator	Combination of MLE and GMM

Data	Execucomp, Compustat

Lucian A. Taylor. Why are CEOs rarely fired? Evidence from structural estimation.

Journal of Finance, 65(6):2051–2087, 2010

Economic question	(See paper's title)
Main results	Model needs huge turnover costs to fit the low CEO turnover rate. These costs mainly reflect entrenchment.
Also interesting	Shareholder value would rise 3% if we eliminated entrenchment, all else equal. A Bayesian learning model fits the CEO turnover data well.
Estimator	SMM
Data	Compustat, Forbes (1971-2006); forced and voluntary CEO turnover, ROA, excess profitability, assets

Qiang Kang, Qiao Liu, and Rong Qi. The Sarbanes-Oxley act and corporate investment: A structural assessment.

Journal of Financial Economics, 96(2):291–305, 2010

Economic question	How did the Sarbanes-Oxley Act of 2002 affect corporate investment?
Main results	"(I)nferred discount rate of U.S. firms increased significantly after the passage of SOX, while the discount rate of U.K. firms remained virtually unchanged." SOX had stronger effects on smaller firms and firms with more systematic risk.
Estimator	GMM
Data	Compustat, CRSP (1998-2005); Investment, R&D, COGS, sales, market beta, B/M, returns, leverage.

Erwan Morellec, Boris Nikolov, and Norman Schürhoff. Corporate governance and capital structure dynamics.

Journal of Finance, 67(3):803–848, 2012

Economic question	How much do manager-shareholder conflicts affect capital structure choices?
Main results	"Agency costs of 1.5% of equity value on average are sufficient to resolve the low-leverage puzzle and explain the dynamics of leverage ratios."
Also interesting	Consistency check: Their model-generated measure of agency costs correlates with many common governance proxies.
Estimator	SML
Data	Compustat, ExecuComp, Thomson Reuters (1992-2004); Book debt, equity, leverage, tangibility, R&D, EBIT growth rate, equity volatility, CEO tenure

Jeffrey L. Coles, Michael L. Lemmon, and J. Felix Meschke. Structural models and endogeneity in corporate finance: The link between managerial ownership and corporate performance.

Journal of Financial Economics, 103(1):149–168, 2012

Economic question	What explains the relationship between managerial ownership and corporate performance?
Main results	Model can generate the well known hump-shaped relation between Tobin's Q and managerial ownership.
Also interesting	Using the model, they show that "in the ownership-performance context, proxy variables, fixed effects, and instrumental variables do not generally provide reliable solutions to simultaneity bias."
Estimator	GMM
Data	ExecuComp, Compustat (1993-2000), CEO'ownership share, assets, sales, leverage, R&D, advertising, Tobin's Q

Lucian A. Taylor. CEO wage dynamics: Estimates from a learning model.

Journal of Financial Economics, 108:79–98, 2013

Economic question	Do CEO wage dynamics reflect weak corporate governance or optimal contracting?

Main results	The average CEO avoids the negative surplus from bad news.
	    (Consistent with optimally downward-rigid pay)
	The average CEO captures $1/2$ of $(+)$ surplus from good news.
	    (Implies CEOs have moderate bargaining power)

Also interesting	Stock return volatility decays with CEO tenure. Learning about CEO skill can explain why. New method: How structural parameters vary with observables.
Estimator	SMM
Data	Execucomp,CRSP, Compustat (1992-2007); CEO pay, stock returns (levels and volatility), CEO tenure

George-Levi Gayle, Limor Golan, and Robert A. Miller. Promotion, turnover, and compensation in the executive labor market.

Econometrica, 83(6):2293—2369, 2015

Economic question	What does drive the relation between firm size and pay?
Main results	Certainty equivalent pay falls with size even though pay rises. CEO signal quality falls, so there is a bigger risk premium embedded in executive pay.
Also interesting	The lower certainty-equivalent pay is mainly due to the disutility associated with diligent work.
Estimator	Least squares, method of moments
Data	Execucomp, Compustat

Hae Won (Henny) Jung and Ajay Subramanian. CEO talent, CEO compensation, and product market competition.

Journal of Financial Economics, 125(1):48–71, 2017

Economic question	Do CEOs matter for firm value?
Main results	CEOs' impact on firm value is more than 100x larger than previously believed (i.e., vs. Gabaix and Landier, 2008).
Also interesting	It is crucial to account for differences across industries, especially differences in product-market competition.
Estimator	SMM
Data	Compustat, Execucomp (1993-2013); CEO pay, firm value, sales, operating costs, assets, income

Beau Page. CEO attributes, compensation, and firm value: Evidence from a structural estimation.

Journal of Financial Economics, 128:378–401, 2018

Economic question	What is the impact of CEO attributes on compensation and firm value?
Main results	"Variation in CEO attributes explains the majority of variation in compensation, but little of the variation in firm value."
Also interesting	Counterfactuals: "Removing CEO influence increases shareholder value in the typical firm by 1.74%, making CEOs risk neutral increases shareholder value by 16.12%, and removing all agency frictions increases shareholder value by 28.99%."
Estimator	SMM
Data	Execucomp, Compustat, CRSP (1992-2014); CEO compensation and stock/option holdings, accounting variables, stock volatility

Erwan Morellec, Boris Nikolov, and Norman Schürhoff. Agency conflicts around the world.

Review of Financial Studies, 31(11):4232–4287, 2018

Economic question	How large are agency conflicts around the world? What firm and country characteristics explain the differences?
Main results	At the firm level, various governance provisions and ownership concentration are closely associated with governance quality. At the country level, distortions are less in civil law countries.
Also interesting	Governance reforms in Europe during the 2000s significantly reduced agency costs.
Estimator	SMLE
Data	Compustat Global, Thomson Reuters

Oriana Bandiera, Andrea Prat, Stephen Hansen, and Raffaella Sadun. CEO behavior and firm performance.

Journal of Political Economy, 128(4):1325–1369, 2020

Economic question	What do CEOs do to increase firm performance? How do differences in CEO behavior relate to differences in firm performance?
Main results	Machine learning on diary data indicates two types: leaders and (micro)managers. Firms with leaders perform better.
Also interesting	Productivity differentials are due to mismatches rather than to leaders being better for all firms. It takes three years for a new CEO to make a difference.
Estimator	Unsupervised learning (reduced form part), MLE on an assignment model (structural part)
Data	Hand-collected data on CEO activities.

Jeremy Bertomeu, Edwige Cheynel, Edward Xuejun Li, and Ying Liang. How pervasive is earnings management? Evidence from a structural model.

Management Science, 67(8):5145–5162, 2021

Economic question	What is the cost of earnings management? What is the associated equilibrium level of earnings management?
Main results	"Our estimates suggest that the average magnitude of earnings management is about 0.006 of the beginning-of-the-year book value of common equity"
Also interesting	Results suggest more earnings management "during seasoned equity offerings, for smaller and growing firms, as well as in industries with more irregularities."
Estimator	MLE
Data	Accounting data from Compustat

Jose Maria Barrero. The micro and macro of managerial beliefs.

Journal of Financial Economics, 143(2):640–667, 2022b

Economic question	How do biases in managerial beliefs affect managerial decisions, firm performance, and the macroeconomy?
Main results	Overprecision and overextrapolation lead managers to overreact to firm-level shocks and overspend on adjustment costs, destroying 2.1% to 6.8% of the typical firm's value. Pervasive overreaction leads to excess volatility and reallocation, lowering consumer welfare by 0.5% to 2.3% relative to the rational-expectations equilibrium.
Also interesting	Overextrapolation and overprecision are the key reasons why managers destroy value, whereas managerial pessimism has a small marginal impact.
Estimator	SMM
Data	SBU (Survey of Business Uncertainty)

Jeremy Bertomeu, Iván Marinovic, Stephen J Terry, and Felipe Varas. The dynamics of concealment.

Journal of Financial Economics, 143(1):227–246, 2022

Economic question	Do firms strategically manage voluntary disclosure of information? How much more information do the managers possess than investors? Does this behavior increase uncertainty?
Main results	About 80% of managers strategically withhold information. Managers have superior information around half of the time. Firms conceal information about 40% of the time.
Also interesting	Strategic concealment by managers results in an 8% increase in market uncertainty, pointing to a sizable information loss, while validating the attention paid to firm disclosure by policymakers.
Estimator	SMM
Data	I/B/E/S, Compustat

Michele Fioretti. Caring or pretending to care? Social impact, firms' objectives, and welfare.

Journal of Political Economy, 130(11):2898–2942, 2022

| Economic question | How large is a firm's social impact, including surpluses to the firm and its stakeholders? |

| Main results | A firm's social mission allows the recovery of almost 80% of the welfare that a social planner would generate. |

| Also interesting | Incentivizing a standard profit-maximizing firm to behave similar to prosocial firm would require subsidies amounting to 58% of its prosocial expenditures. |

| Estimator | Demand and Supply estimation |

| Data | Auctions of authentic soccer jerseys (Hand-collected) |

Hengjie Ai, Dana Kiku, and Rui Li. A quantitative model of dynamic moral hazard.

The Review of Financial Studies, 36(4):1408–1463, 2023

Economic question	How large is the impact of moral hazard when some productivity shocks are privately observed by firm manager?
Main results	Unobservable shocks are relatively modest and account for about 10% of the total variation of firm output. Eliminating moral hazard would result in about a 1% increase in aggregate output.
Also interesting	Moral-hazard-induced incentive pay is quantitatively significant and accounts for 50% of managerial compensation.
Estimator	SMM
Data	CRSP, Compustat, ExecuComp

Stephen J Terry, Toni M Whited, and Anastasia A Zakolyukina. Information versus investment.

The Review of Financial Studies, 36(3):1148–1191, 2023

Economic questions	Does information distortion have real effects? In particular, earnings disclosure.
Main results	If you counterfactually remove earnings disclosure regulation investment is mistimed. Firm value drops.
Also interesting	Firms substitute paper earnings manipulation with real earnings manipulation
Estimator	SMM
Data	Compustat and Audit Analytics

Corporate finance topics

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Rui Albuquerque and Enrique Schroth. Quantifying private benefits of control from a structural model of block trades.

Journal of Financial Economics, 96(1):33–55, 2010

Economic question	What determines private benefits of control in negotiated block trades? (Estimates block pricing model of Burkart et. al, 2000).
Main results	Key determinant of premiums: ability to fight a tender offer. Private benefits and resulting deadweight costs are large... ... but value creation by controlling shareholders is also large.
Estimator	Nonlinear least squares
Data	Thomson One Banker, Compustat, and Center for Research in Security Prices (1990-2006); price per share in the block, block size, block premium, target firm-specific and acquirer-specific variables

Nickolay Gantchev. The costs of shareholder activism: Evidence from a sequential decision model.

Journal of Financial Economics, 107:610–631, 2013

Economic question	How large are activist hedge funds' costs and net returns? For example, how costly is it to wage a proxy fight?
Main results	Costs of activism are large: The costs reduce gross returns by $> 2/3$. A campaign ending in a proxy fight: Avg. cost $=\$11M$. Average net activist return ≈ 0 .
Also interesting	Models activism as a sequential decision process: Demand negotiations $\rightarrow$ board seats $\rightarrow$ proxy contest. Paper estimates the cost of each activism stage.
Estimator	Likelihood
Data	SEC Schedule 13D, SharkRepellent.net (2000-2007); detailed, comprehensive data set on hedge fund activist campaigns

Alexander S. Gorbenko and Andrey Malenko. Strategic and financial bidders in takeover auctions.

Journal of Finance, 69(6):2513–2555, 2014

Economic question	Do strategic and financial bidders value target firms differently?

Main results	Typical target firm is valued higher by strategic bidders. But 22% of targets are valued higher by financial bidders.

Also interesting	Paper estimates an auction model. Mature, poorly performing target companies are valued higher by financial bidders (e.g. buyout shops). Message: different targets appeal to different types of bidders.

Estimator	Likelihood

Data	SEC filings (hand collected) / compustat (2000-2008); bids, firm size, market leverage, market to book, cash flow, cash and short-term investments, R&D expenses, intangible assets

Theodosios Dimopoulos and Stefano Sacchetto. Preemptive bidding, target resistance, and takeover premiums.

Journal of Financial Economics, 114:444–470, 2014

Economic question	Why are takeover premiums so large?
	Evaluate 2 potential reasons:
	    1) Preemptive bidding
	    2) Target resistance

Main results	"Target resistance explains the entire magnitude of the premium in 74% of successful single-bidder contests."
Estimator	SMM
Data	Thomson's Financial SDC Platinum database / CRSP (1988-2006). Many variables! Takeover outcomes, bid characteristics...

Rui Albuquerque and Enrique Schroth. The value of control and the costs of illiquidity.

Journal of Finance, 70(4):1405–1455, 2015

Economic question	What are the costs and benefits of owning and trading blocks of shares?
Main results	They estimate value of control, blockholders' marketability discount, and dispersed shareholders' illiquidity-spillover discount.
Estimator	SMM
Data	Thomson One Banker, CRSP, Compustat (1990-2010); block trades' outcomes, determinants of aggregate liquidity and of liquidation values

Wenyu Wang. Bid anticipation, information revelation, and merger gains.

Journal of Financial Economics, 128(2):320–343, 2018

Economic question	How large are merger gains? How can we reconcile them with bidders' stock returns?
Main results	Acquirers gain 4% from typical merger, after controlling for the market's reassessment of the acquirer's stand-alone value.
Also interesting	Revelation effect: Decision to become an acquirer reveals bad news about acquirer's prospects. Explains why acquirer announcement returns can be negative, even though merger gains are large.
Estimator	SMM
Data	Thomson Reuters SDC Platinum, CRSP / Compustat (1980-2012); M&A characteristics, assets, ROA, stock returns, annoucement returns

Di Li, Lucian A. Taylor, and Wenyu Wang. Inefficiencies and externalities from opportunistic acquirers.

Journal of Financial Economics, 130(2):265–290, 2018

Economic question	Does equity misvaluation affect the M&A market? How large are the resulting inefficiencies?
Main results	Inefficiency is small on average (0.6% of target value). Inefficiency is large in deals where misvaluation is more likely.
Also interesting	Misvaluation causes large redistributions across acquirers
Estimator	SMM
Data	Compustat, SDC

Matthew Gentry and Caleb Stroup. Entry and competition in takeover auctions.

Journal of Financial Economics, 132(2):298–324, 2019

| Economic question | Do auctions or negotiations produce higher acquisition prices? What role do information frictions play? |

| Main results | Information frictions can enhance the performance of auctions. More uncertainty encourages auction entry but lowers target borrowing power. The first effect is stronger. |

| Also interesting | Negotiations tend to perform well in takeover markets where information frictions are low. |

| Estimator | Simulated MLE |

| Data | Hand collected SEC filings |

Alexander S. Gorbenko. How do valuations impact outcomes of asset sales with heterogeneous bidders?

Journal of Financial Economics, 131(1):88–117, 2019

Economic question	In asset sales, how do differences among bidders affect outcomes and division of surplus between buyer and seller? For example, why do strategic bidders pay more than financial bidders in M&A constests?
Main results	Because their valuation *dispersions* are different. And because the number of bidders of each type differs.
Also interesting	Differences in *average* valuations are relatively unimportant.
Estimator	Likelihood
Data	SEC filings (hand collected), Compustat (2000-2012); bids, firm size, leverage, M/B, cash flow, cash, R&D, intangible assets

Wenyu Wang and Yufeng Wu. Managerial control benefits and takeover market efficiency.

Journal of Financial Economics, 136(3):857–878, 2020

Economic question	"How and to what extent do managerial control benefits shape the efficiency of the takeover market?"

Main results	Managerial control benefits have a dark and bright side:
	   Dark: They lead to asset misallocation.
	   Bright: They enhance disciplinary effect of takeover market.
	 Both sides are large and comparable in magnitude.

Also interesting	Bright side helps explain low takeover-performance sensitivity.

Estimator	SMM

Data	CRSP, Compustat, SDC; 1980–2015

Travis L. Johnson and Nathan Swem. Reputation and investor activism: A structural approach.

Journal of Financial Economics, 139(1):29–56, 2021

Economic question	How important is reputation in hedge fund activism? Why do targets settle so frequently, even though activists face high proxy costs? Why do activists initiate so many campaigns, despite the free-rider problem?
Main results	High-reputation activists initiate 3.5 times as many campaigns and extract 85% more settlements from targets. Reputation-building incentives explain 20% of campaign initiations and 19% of proxy fights.
Also interesting	Reputation effects nearly double the value activism adds for target shareholders.
Estimator	MLE
Data	Edgar, Sharkwatch, Compustat

Rui Albuquerque, Vyacheslav Fos, and Enrique Schroth. Value creation in shareholder activism.

Journal of Financial Economics, 145(2):153–178, 2022

| Economic question | Do activists add value, or are they just good stock pickers? |

| Main results | Decomposition of activists' announcement returns: 75% from value creation, 13% from stock picking, and 12% from sample selection effects. |

| Also interesting | To validate the model's cross-equation restrictions, the authors compare its performance to the performance of reduced-form approaches used in the activism literature. |

| Estimator | MLE |

| Data | CRSP, Compustat, Thomson Reuters, 13D and 13G filings from EDGAR |

Murat Alp Celik, Xu Tian, and Wenyu Wang. Acquiring innovation under information frictions.

The Review of Financial Studies, 35(10):4474–4517, 2022

Economic question	What is the effect of information frictions on the reallocation of innovation through M&A?
Main results	The acquirers' due diligence reveals only 30% of private information possessed by targets. Eliminating information frictions increases capitalized merger gains by 59%, stimulates innovation, and boosts productivity, business dynamism, and social welfare.
Also interesting	They show a strong inverted-U correlation between a firm's innovativeness and exposure to takeovers.
Estimator	SMM
Data	IBES

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Enrique Schroth, Gustavo Suarez, and Lucian A. Taylor. Dynamic debt runs: Evidence from the 2007 ABCP crisis.

Journal of Financial Economics, 112:164–189, 2014

Economic question	What causes bank runs? How can we prevent them?
Main results	Runs are highly sensitive to asset values, leverage, & liquidity. They're less sensitive to volatility, maturity mismatch.
Also interesting	Runs are predictable (using debt yields). First estimation of a bank-run model.
Estimator	SMM
Data	Yields and rollovers for ABCP conduits in 2007

Ari Kang, Richard Lowery, and Malcolm Wardlaw. Bank failures and regulatory incentives: A structural estimation.

Review of Financial Studies, 28:1060–1102, 2015

Economic question	How do regulators choose whether to close a troubled bank?
Main results	Regulators trade off (a) an aversion to close banks against (b) higher risk and future deposit-insurance costs from delayed closure. Delayed closures are driven by "desire to defer costs, an aversion to closing the largest and smallest troubled banks, and political influence."
Estimator	Conditional choice probability approach (likelihood)
Data	Call reports (1985-1992); banks' balance sheet & income statement, state unemployment rates, political variables

Mark Egan, Ali Hortaçsu, and Gregor Matvos. Deposit competition and financial fragility: Evidence from the U.S. banking sector.

American Economic Review, 107(1):169–216, 2017

Economic question	What makes banks vulnerable to runs and distress? How can regulators stabilize banks and improve welfare?
Main results	Heterogeneity matters: Insured and uninsured depositors select into different types of banks. Capital requirement below 18% can lead to instability. Improving bank stability isn't always good for welfare.
Also interesting	Provides a workhorse model for evaluating stability of banking system.
Estimator	Likelihood
Data	Call reports (2002-2013); insured and uninsured deposits, CDS spreads, deposit spreads, stock returns

Michael Schwert. Bank capital and lending relationships.

Journal of Finance, 73(2):787–830, 2018

Economic question	Which banks match with which firms?

Main results	Bank-dependent firms borrow from well capitalized banks. Firms with access to the bond market borrow from banks with less capital.

Also interesting	The matching of bank-dependent firms with stable banks smooths economics fluctuations.

Estimator	Maximum score. Estimates the Fox (2016) matching model.

Data	Dealscan, Compustat

Gregory S. Crawford, Nicola Pavanini, and Fabiano Schivardi. Asymmetric information and imperfect competition in lending markets.

American Economic Review, 108:1659–1701, 2018

Economic question	What are the effects of asymmetric information and imperfect competition on small business lending?

Main results	Evidence of adverse selection: $(+)$ correlation between default and unobservable determinants of demand. But banks' market power mitigates the negative effects.

Estimator	MLE

Data	Italian Central Credit Registry, Centrale dei Bilanci

Chenghuan Sean Chu and Marc Rysman. Competition and strategic incentives in the market for credit ratings: Empirics of the financial crisis of 2007.

American Economic Review, 109(10):3514–3555, 2019

Economic question	Do ratings agencies distort their ratings?

Main results	Yes: "Strategic incentives to increase ratings are important...." ...But less so after financial crisis. Main economic forces: ratings shopping and catering.

Also interesting	Clever adaptation of auction models to a non-auction setting

Estimator	Two-step estimator

Data	CMBS from Morningstar, hand-collected data on evaluation of the CMBS by the chosen ratings agencies

Olivier Darmouni. Informational frictions and the credit crunch.

Journal of Finance, 75:2055–2094, 2020

Economic question	How do lenders use private information on borrowers? How important it is for explaining credit patterns during the financial crisis?
Main results	"Quantitatively, these informational frictions seem too small to explain the credit crunch in the U.S. syndicated corporate loan market."
Also interesting	Shows how to identify private information separately from common information not observed by econometrician.
Estimator	MLE, discrete choice model
Data	Dealscan, 2004–2010

Kairong Xiao. Monetary transmission through shadow banks.

Review of Financial Studies, 33(6):2379–2420, 2020

Economic question	Do the activities of shadow banks amplify or mitigate monetary policy? Can the difference in types of depositors that commercial and shadow banks attract explain differential responses to monetary policy?
Main results	"Shadow bank money creation significantly expands during monetary tightening cycles . . .monetary tightening drives deposits from the insured commercial banking sector to the uninsured shadow banking sector."
Also interesting	Banks and shadow banks have distinct clienteles. As shadow bank clienteles are more rate sensitive (and they know this), shadow banks pass through more rate hikes to depositors when the Fed raises rates.
Estimator	BLP Demand Estimation
Data	Call Reports for banks and iMoneyNet for MMFs

Valentin Haddad and David Sraer. The banking view of bond risk premia.

Journal of Finance, 75(6):2465–2502, 2020

Economic question	Can the exposure of bank balance sheets to interest rate risk explain bank risk premia?
Main results	"Banks' balance sheet exposure to fluctuations in interest rates strongly forecasts excess Treasury bond returns", and bond risk premium compensates banks for bearing interest rate risk.
Also interesting	By itself, average exposure of banks' assets to interest rate risk does not forecast bond risk premia, nor do liabilities alone. We need a measure ("Income Gap") that captures both as overall holdings.
Estimator	OLS
Data	Federal Reserve data on bank holding companies (FR Y-9C)

Matteo Benetton. Leverage regulation and market structure: A structural model of the UK mortgage market.

The Journal of Finance, 76(6):2997–3053, 2021

Economic question	How does leverage regulation affect the U.K. mortgage market?
Main results	A 1-percentage-point increase in risk-weighted capital requirements increases lenders' marginal cost of originating mortgages by about 26 basis points (11%) on average.
Also interesting	Counterfactual analyses show that large lenders exploit a regulatory cost advantage, which increases concentration by about 20%, and suggest that banning high-LTV mortgages may reduce large lenders' equity buffer.
Estimator	GMM
Data	Product Sales Database (PSD) on residential mortgage originations collected by the Financial Conduct Authority (FCA)

Edward Denbee, Christian Julliard, Ye Li, and Kathy Yuan. Network risk and key players: A structural analysis of interbank liquidity.

Journal of Financial Economics, 141:831–859, 2021

Economic question	What is role of the interbank network in transmitting individual banks' liquidity shocks? What is the liquidity multiplier and banks' contribution to systemic risk?
Main results	"An interbank network amplifies shocks when banks' decisions to hold reserves are strategic complements", but dampens shocks when they are strategic substitutes. The paper obtains time-varying estimates of strategic complementarity depending on the subsample.
Also interesting	"The cyclicality of network externality suggests the need for macroprudential regulation of banks' liquidity choices." Network topology is a main driver of the "cross-sectional variation in banks' contribution to systemic risks."
Estimator	Likelihood
Data	UK banking data

Dean Corbae and Pablo D'Erasmo. Capital buffers in a quantitative model of banking industry dynamics.

Econometrica, 89(6):2975–3023, 2021

Economic question	How much do regulatory policies (Dodd–Frank Act) affect banks?
Main results	The rise in capital requirements decreases long-run exit rates of small banks, and also leads to a more concentrated industry since it inhibits entry. The net effect of higher big bank lending and lower small bank lending is a decrease in total bank lending of over 7% in the short run and nearly 9% in the long run, but only a modest rise in interest rates on loans in the long run.
Also interesting	In the short run, big banks decide to strategically gain loan market share financed by issuing more equity, cutting dividends, and retaining more earnings.
Estimator	SMM
Data	Call Reports

Ben Craig and Yiming Ma. Intermediation in the interbank lending market.

Journal of Financial Economics, 145(2):179–207, 2022

Economic questions	Do interbank funding networks constitute a source systemic risk? What role do monitoring and state verification costs play in maintaining the network
Main results	Estimation of a network model shows that the average borrower invests in two links with intermediaries A small impact to intermediary bank capital can curtail lending to a large number of borrowing banks
Also interesting	Without inter- mediation, direct bank borrowing would double monitoring costs. Cost avoidance implies network stickiness, which exposes borrowing banks to intermediary shocks.
Estimator	Manski maximum score estimator
Data	German Bundesbank banking data

Marco Di Maggio, Mark Egan, and Francesco Franzoni. The value of intermediation in the stock market.

Journal of Financial Economics, 145(2):208–233, 2022

Economic questions	How much do institutional investors value broker services? Most use high-touch, non-electronic services.
Main results	Brokers create value via formal research (30%), informal research (order-flow information) (20%), and trade execution (50%)
Also interesting	Demand for broker services is inelastic. If a broker raises fees by 1%, its trading volume falls by .47%
Estimator	BLP demand estimation
Data	Private data on equity transactions from Abel Noser Solutions

Mark Egan, Stefan Lewellen, and Adi Sunderam. The cross-section of bank value.

The Review of Financial Studies, 35(5):2101–2143, 2022

Economic question	What determines value creation in the cross-section of U.S. commercial banks? What is the relative importance of each factor?
Main results	"We find that deposit productivity is responsible for two-thirds of the value of the median bank and most variation in value across banks."
Also interesting	The variation in productivity measures given in the paper is not fully explained by differences in market power and customer demographics alone; technological differences matter.
Estimator	IV demand estimation
Data	Federal Reserve FR Y-9C for balance sheet and income statement data.

Vasso Ioannidou, Nicola Pavanini, and Yushi Peng. Collateral and asymmetric information in lending markets.

Journal of Financial Economics, 144(1):93–121, 2022

Economic questions	Is there micro-founded evidence of the benefits of collateral? How does a shock to collateral values affect both the demand and supply of credit in the presence of asymmetric information frictions?
Main results	Collateral plays an important screening role in bank loan contracts.
Also interesting	Its effectiveness is negatively affected by collateral shocks, which can be mitigated by allowing banks to respond through both pricing and rationing.
Estimator	Demand estimation
Data	Bolivian credit registry

Xu Tian. Uncertainty and the shadow banking crisis: Estimates from a dynamic model.

Management Science, 68(2):1469–1496, 2022

Economic questions	To what extent do uncertainty shocks matter for the dramatic asset contraction and deleveraging in the shadow banking credit contraction during the 2007–2009 crisis?
Main results	The parameter estimates imply that uncertainty shocks can explain 72% of the asset contraction and 70% of the deleveraging.
Also interesting	First-moment shocks alone cannot reproduce the dramatic deleveraging or contraction in the U.S. shadow banking sector during the crisis.
Estimator	SMM
Data	U.S. bank-level shadow bank data

Yifei Wang, Toni M Whited, Yufeng Wu, and Kairong Xiao. Bank market power and monetary policy transmission: Evidence from a structural estimation.

The Journal of Finance, 77(4):2093–2141, 2022

Economic question	What is the impact of bank market power on monetary policy transmission?
Main results	Effects of bank market power on monetary transmission are large, comparable to those of bank capital regulation.
Also interesting	"When the federal funds rate falls below 0.9%, market power interacts with bank capital regulation to produce a reversal of the effect of monetary policy."
Estimator	BLP demand estimation and SMD
Data	Call Reports, FDIC Summary of Deposits, CRSP, FRED

Adrien Alvero, Sakai Ando, and Kairong Xiao. Watch what they do, not what they say: Estimating regulatory costs from revealed preferences.

The Review of Financial Studies, 36(6):2224–2273, 2023

Economic questions	Do banks' actions suggest they inflate their reported estimates of regulatory costs.
Main results	Regulatory costs associated with Dodd-Frank are substantially lower than those claimed by banks.
Also interesting	Banks strategically bunch their assets below regulatory thresholds to avoid regulations
Estimator	Bunching estimator
Data	Call reports

Nicolas Crouzet, Apoorv Gupta, and Filippo Mezzanotti. Shocks and technology adoption: Evidence from electronic payment systems.

Journal of Political Economy, 2023

Economic questions	What is the importance of coordination frictions in technology adoption?
Main results	A temporary contraction in cash due to Indian Demonetization in 2016 led to a persistent increase in adoption of electronic wallets
Also interesting	Behavior is consistent with a dynamic technology adoption model with complimentaries. Adoption would have been 45% lower without complementarities.
Estimator	SMM
Data	Indian merchant-level fintech payment system data

Amy Wang Huber. Market power in wholesale funding: A structural perspective from the triparty repo market.

Journal of Financial Economics, 149(2):235–259, 2023

Economic questions	How well is monetary policy implemented through the Federal Reserve's reverse repo facility (RRP)
Main results	Triparty dealers enjoy substantial market power.
Also interesting	Observed wholesale repo rates diverge from the unobserved, dealer-intermediated financing rates market participants face.
Estimator	Demand estimation
Data	SEC filings on money market mutual funds

Yan Ji, Songyuan Teng, and Robert M Townsend. Dynamic bank expansion: Spatial growth, financial access, and inequality.

Journal of Political Economy, 2023

Economic questions	How does the geographic expansion of banks affect local economic outcomes?
Main results	Branch openings significantly increase a local market's income, employment, credit access, and firm entry.
Also interesting	Market size, productivity, and access to finance are three important market characteristics that explain the geographic distribution of branches in the data
Estimator	SMM
Data	Thai bank branch locations and road networks

N Aaron Pancost and Roberto Robatto. The effects of capital requirements on good and bad risk-taking.

The Review of Financial Studies, 36(2):733–774, 2023

Economic question	Does accounting for the deposits held by nonfinancial firms affect the determination of the optimal capital requirement for financial firms?
Main results	The optimal capital requirement is higher than in comparable models in which all the deposits are only held by households.
Also interesting	Setting the capital requirement higher than the true optimum is not as costly as one would estimate from the comparable models.
Estimator	Solved by Nonlinear global projection methods
Data	Flow of Funds (FF) and the Survey of Consumer Finances (SCF), data on deposits from the FDIC and the National Credit Union Administration

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Michaela Pagel. A news-utility theory for inattention and delegation in portfolio choice.

Econometrica, 86(2):491–522, 2018

| Economic questions | Why do investors hire portfolio managers? Is this behavior utility maximizing if managers charge fees? |

| Main results | Because consumers are loss averse, and because the stock market is volatile, they prefer to be inattentive to their portfolios. Hiring a manager can maximize utility. |

| Also interesting | When investors do look at their portfolios, they rebalance excessively |

| Estimator | SMM |

| Data | Survey of Consumer Finances, Consumer Expenditure Survey |

Mark Egan. Brokers versus retail investors: Conflicting interests and dominated products.

Journal of Finance, 74(3):1217–1260, 2019

Economic questions	Do brokers distort households' investment decisions?
	How large are households' search costs?

Main results	Brokers recommend inferior products to the unsophisticated.
	Average search costs: $30 for a $1,000 investment.

Also interesting	Even with misaligned incentives, brokers create value by reducing search costs.

Estimator	MLE

Data	Reverse convertible bonds, 2008–2012

John Ameriks, Joseph Briggs, Andrew Caplin, Matthew D. Shapiro, and Christopher Tonetti.

Long-term-care utility and late-in-life saving.

Journal of Political Economy, 128(6):2375–2451, 2020

Economic question	Why do older wealth holders spend down assets more slowly than predicted by classic life cycle models? Can previous explanations such as longevity risk, bequest motive, or precautionary motives (due to healthcare expenses) quantitatively explain the gap?
Main results	The risk of needing long-term care when old is a substantial motive for accumulating assets.
Also interesting	They use strategic survey questions to elicit specific behavior responses to hypotheticals. Estimation links parameters to responses.
Estimator	SMM
Data	SSQs and wealth data from the Vanguard Research Initiative

Joseph Briggs, David Cesarini, Erik Lindqvist, and Robert Östling. Windfall gains and stock market participation.

Journal of Financial Economics, 139(1):57–83, 2021

Economic question	What is the causal relationship of an unexpected wealth increase on stock market participation? Why does a randomized assignment of lottery prizes result in so little stock market participation, when compared to estimates from a structural life cycle model?
Main results	A \$150,000 windfall gain increases the probability of stock market participation by 12 p.p. among prelottery nonparticipants. Analyses point to substantial entry costs and pessimistic beliefs.
Also interesting	Stock market participation rises only for nonparticipants, but has no discernible effect on prelottery stock owners.
Estimator	SMD with empirical policy functions
Data	Swedish administrative data on lottery and detailed individual characteristics.

Luigi Guiso, Andrea Pozzi, Anton Tsoy, Leonardo Gambacorta, and Paolo Emilio Mistrulli. The cost of steering in financial markets: Evidence from the mortgage market.

Journal of financial economics, 143(3):1209–1226, 2022

Economic question	What are the welfare implications of banks steering unsophisticated customers into complex financial products?
Main results	Average cost of distortion is equivalent to 16% of the annual mortgage payment. But restricting the scope of steering does not necessarily increase household welfare, as steering may also contain useful information.
Also interesting	There is substantial heterogeneity in the welfare effects on households, and unsophisticated households fare worse.
Estimator	IV demand estimation
Data	Italian mortgages

Sylvain Catherine. Countercyclical labor income risk and portfolio choices over the life cycle.

The Review of Financial Studies, 35(9):4016–4054, 2022a

Economic question	How does human capital affect the demand for stocks?
Main results	Introducing cyclical skewness into a life cycle model leads to more plausible estimates of preference parameters: the model matches the data well with a risk aversion of $\gamma = 6$ and a participation cost of \$250.
Also interesting	Without cyclical skewness, the same model requires a risk aversion above 12 or a participation cost above \$400 to match the average equity share and cannot explain its decline over the life cycle.
Estimator	SMM
Data	The Social Security Master Earnings File (MEF), The summary extract public data from the Survey of Consumer Finances

Anthony A DeFusco, Huan Tang, and Constantine Yannelis. Measuring the welfare cost of asymmetric information in consumer credit markets.

Journal of Financial Economics, 146(3):821–840, 2022

Economic questions	How large are the welfare losses arising from asymmetric information in the market for online fintech consumer credit in China,
Main results	The per-applicant deadweight loss due to asymmetric information is estimated to be approximately 0.8% of the typical loan amount or ¥50 per loan applicant.
Also interesting	If moral hazard is present, this estimate is an upper bound for the true welfare loss, which could be even smaller.
Estimator	Demand estimation
Data	Chinese fintech platform

Kei Kawai, Ken Onishi, and Kosuke Uetake. Signaling in online credit markets.

Journal of Political Economy, 130(6):1585–1629, 2022

Economic questions	How does signaling affect market outcomes and welfare in credit markets for unsecured loans?
Main results	The reserve interest rate posted in the online market by a borrower serves as a signal of the borrower's creditworthiness in the studied market.
Also interesting	The cost of adverse selection can be as much as 34% of the total surplus created under no asymmetric information.
Estimator	MLE
Data	Prosper

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Entrepreneurship and innovation	5	8
Real estate finance	4	6
Labor and finance	2	4
Bankruptcy	3	4
Total	**79**	**112**

Morten Sorensen. How smart is smart money: A two-sided matching model of venture capital.

Journal of Finance, 62:2725–2762, 2007

Economic question	Why do the top VCs outperform? Do they add more value or just select better start-ups?
Main results	Both! Top VCs add more value and select better companies.
Also interesting	Estimation "exploits the implications of sorting to separate sorting from influence. Sorting implies that in a market with more experienced investors, a given investor is pushed down in the relative ranking and is left with worse companies."
Estimator	Likelihood, MCMC
Data	Venture Xpert (1975-1995); VC experience level, investment characteristics and outcomes, industry-specific data

Carola Frydman and Dimitris Papanikolaou. In search of ideas: Technological innovation and executive pay inequality.

Journal of Financial Economics, 132(2):665–712, 2018

Economic questions	Why are CEOs paid so much more than other workers? Why is there so much dispersion in pay across CEOs?
Main results	CEOs have a special skill: finding new projects (innovating). CEOs get compensated for this skill.
Also interesting	Model explains why CEO pay is higher in fast-growing firms. Can also explain why pay inequality increases with level of aggregate investment opportunities.
Estimator	Simulated minimum distance
Data	Data from Frydman and Saks (2010), Execucomp, Forbes compensation, Compustat (1950-2010); executive compensation, pay inequality, aggregate consumption, investment rate...

John Bailey Jones and Sangeeta Pratap. An estimated structural model of entrepreneurial behavior.

American Economic Review, 110(9):2859–2898, 2020

Economic question	To what extent is entrepreneurial risk-taking motivated by nonpecuniary considerations? How big are the returns to relaxing financial constraints for small businesses?
Main results	Nonpecuniary benefits are large and keep small, low-productivity farms in business. Collateral constraints inhibit borrowing especially for high-productivity farms. Financial constraints and nonpecuniary benefits are 1st order, but risk is not.
Also interesting	Although farmers are risk averse, eliminating uninsured production risk has only modest effects on capital and output.
Estimator	SMM
Data	Panel data on owner-operated New York dairy farms.

Michael Ewens, Alexander Gorbenko, and Arthur Korteweg. Venture capital contracts.

Journal of Financial Economics, 143(1):131–158, 2022

Economic question	How do VC contracts affect ...
	... startup outcomes? (size of pie)
	... value going to VCs and entrepreneurs? (split of pie)

Main results	VC contracts do not maximize the size of pie.
	VCs use their bargaining power to grab more of the pie.
	Startups still benefit from matching with high-quality VCs because they grow the pie.

Also interesting	Estimates a dynamic search model.

Estimator	GMM

Data	Extremely detailed data on first-round VC investment contracts.
	Dow Jones VentureSource, Pitchbook, VentureEconomics, Correlation Ventures

Shai Bernstein, Emanuele Colonnelli, Davide Malacrino, and Tim McQuade. Who creates new firms when local opportunities arise?

Journal of Financial Economics, 143(1):107–130, 2022

Economic question	Who becomes entrepreneurs when local opportunities arise and what are their characteristics?
Main results	The response to firm creation is predominantly driven by young and skilled individuals.
Also interesting	The results suggest that age, skill, and experience trends might have contributed to the declining business dynamism observed in the United States over the past 20 years.
Estimator	OLS with coefficients interpretable from a model
Data	RAIS (administrative database from the Brazilian Ministry of Labor), Data on municipal agricultural crop endowment, Data on global commodity prices

Sylvain Catherine. Keeping options open: What motivates entrepreneurs?

Journal of Financial Economics, 144(1):1–21, 2022b

Economic questions	Why do people leave paid employment to strike out on their own? Does the option to return to paid employment play a role, and how valuable is the option?
Main results	This option is worth 136,700€. It explains 16% of new firm creation.
Also interesting	The paper produces estimates of other unobserved benefits. They are not large, but without them, there would be 27% fewer entrepreneurial firms.
Estimator	SMM (life-cycle model)
Data	French administrative data

Alexandros Fakos, Plutarchos Sakellaris, and Tiago Tavares. Investment slumps during financial crises: The real effects of credit supply.

Journal of Financial Economics, 145(1):29–44, 2022

<table>
<tr><td>Economic questions</td><td>How important is credit supply in explaining declining investment during the Greek depression (2008–2014)?</td></tr>
<tr><td>Main results</td><td>A reduction in credit supply during the crisis explains up to one third of the investment contraction during the Greek depression.</td></tr>
<tr><td>Also interesting</td><td>During the crisis, non-exporters' profitability worsened while exporters' improved.</td></tr>
<tr><td>Estimator</td><td>SMM</td></tr>
<tr><td>Data</td><td>Greek administrative data</td></tr>
</table>

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Francisco Queiró. Entrepreneurial human capital and firm dynamics.

The Review of Economic Studies, 89(4):2061–2100, 2022

Economic question	How does the human capital of entrepreneurs affect firm dynamics and productivity?
Main results	Entrepreneurial human capital affects Total Factor Productivity (TFP) through firm productivity, which leads to increasing returns: aggregate returns to schooling are given by the sum of individual returns in employment and in entrepreneurship.
Also interesting	To fit the model to the Portuguese data, a combination of calibration and estimation is used.
Estimator	Maximum Likelihood
Data	Quadros de Pessoal (Portugal), Sistema de Contas Integradas das Empresas (SCIE)

Corporate finance topics

Topic	#2021	#2023
Investment, capital structure, financing policy	22	29
Corporate governance	14	17
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Dean Corbae and Erwan Quintin. Leverage and the foreclosure crisis.

Journal of Political Economy, 123(1):1–65, 2015

Economic questions	To what extent did high-leverage mortgages contribute to the foreclosure crisis of the late 2000s?
Main results	They accounted for roughly 60% of the rise in foreclosure rates.
Also interesting	Selection effects from default-prone borrowers account for most of this rise.
Estimator	SMM
Data	Survey of consumer finances, PSID, aggregate time series

Tim Landvoigt. Housing demand during the boom: The role of expectations and credit constraints.

Review of Financial Studies, 30(6):1865–1902, 2017

Economic questions	Did overly optimistic expectations about future house price appreciation contribute to the run-up in real estate prices of the 2000s? Are expectations more or less important than credit constraints?
Main results	Expectations about house price appreciation were remarkably stable over the decade. Otherwise ownership would have increased too much.
Also interesting	House prices uncertainty may have contributed to the increase in mortgage debt in the boom years Increases the option value of debt.
Estimator	SMM
Data	Survey of consumer finances

Hyunseung Oh and Chamna Yoon. Time to build and the real-options channel of residential investment.

Journal of Financial Economics, 135(1):255–269, 2020

Economic questions	How does uncertainty affect residential investment?
Main results	"The real-options TTB (time to build) model can account for over one-third of the decline in residential investment between 2002 and 2009."
Also interesting	The main driver of construction delays in 2006 is construction bottlenecks; the main driver of TTB in 2009 is uncertainty.
Estimator	SMM
Data	Survey of Construction data from U.S. Census

Andra C. Ghent. What's wrong with Pittsburgh? Delegated investors and liquidity concentration.

Journal of Financial Economics, 139(2):337–358, 2021

Economic question	What effect do heterogeneous investor preferences for asset liquidity have on asset prices and market segmentation?
Main results	Delegated investors (likely subject to a principal-agent problem) transact commercial real estate more frequently. Strategic complementarity generates path dependence.
Also interesting	A historical lack of delegated investors means that its commercial real estate markets aren't liquid enough to attract such investors today.
Estimator	SMM
Data	Real Capital Analytics transactions data

Cristian Badarinza, Tarun Ramadorai, and Chihiro Shimizu. Gravity, counterparties, and foreign investment.

Journal of Financial Economics, 145(2):132–152, 2022

Economic questions	Why do gravity (distance/size) models work for international real estate transactions?

Main results	Empirical: buys pick sellers who are the same nationality or geographically. This matching is stronger in locations in which the rule of law is weak. Buyers from countries that match with similar nationality sellers are less likely to venture to far locations.

Also interesting	Model-implied affinity offsets distance in the gravity equation.

Estimator	Non-linear least squares (most of the paper is purely empirical)

Data	Real Capital Analytics international real estate deals

Steffen Andersen, Cristian Badarinza, Lu Liu, Julie Marx, and Tarun Ramadorai. Reference dependence in the housing market.

American Economic Review, 112(10):3398–3440, 2022.

Economic questions	Do reference dependence and loss aversion affect home buying decisions?
Main results	Households are strongly reference dependent. Losses hurt households between 2 and 2.5 times more than gains.
Also interesting	Reference dependence and loss aversion are less evident when households face more severe financial constraints.
Estimator	SMM
Data	Danish administrative data

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Ryan Michaels, T. Beau Page, and Toni M. Whited. Labor and capital dynamics under financing frictions.

Review of Finance, 23(2):279–323, 2019

Economic questions	How do employment, wage setting, and financial frictions interact? What forces drive these interactions? How large are these effects?
Main results	Empirically, wages and leverage are negatively related. Contradicts models in which firms insure workers. But consistent with a model that combines factor-adjustment frictions and wage bargaining with costly external finance.
Estimator	Simulated Minimum Distance
Data	Compustat, BLS Longitudinal Database of Establishments (quarterly data on wages and employment)

Qi Sun and Mindy Z. Xiaolan. Financing intangible capital.

Journal of Financial Economics, 133:564–588, 2019

Economic questions	Do firms finance intangible capital by delaying payments to workers? Does this method of financing affect debt capacity?
Main results	The delayed compensation channel is important. Delayed compensation lowers firm debt capacity by 38%.
Also interesting	Debt capacity depends negatively on intangibles because the intangible capital is embodied in workers and can leave.
Estimator	SMM
Data	Compustat

Jose Maria Barrero. The micro and macro of managerial beliefs.

Journal of Financial Economics, 143(2):640–667, 2022a.

Economic questions	How do firm managers form their beliefs about future own-firm outcomes? How do these beliefs affect firm and macro outcomes?
Main results	Managers underestimate the volatility and overestimate the persistence of future own-firm sales. This overreaction results in wasted resources, excess firm volatility and reallocation, and diminished firm value.
Also interesting	The typical firm's value would be 2.1% to 6.8% higher if it hired a manager with rational expectations.
Estimator	SMM
Data	Atlanta Fed Survey of Business Uncertainty

Tommaso Monacelli, Vincenzo Quadrini, and Antonella Trigari. Financial markets and unemployment.

Journal of Financial Economics, 147(3):596–626, 2023

Economic questions	How does firms use of debt to bargain with workers influence labor market dynamics?
Main results	This channel contributes to 26% of observed U.S. unemployment fluctuations since the mid-1980s.
Also interesting	Firms issue debt even if there is no need to finance fixed or working capital because debt reduces the net labor bargaining surplus.
Estimator	Bayesian MCMC
Data	Compustat

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Brent Glover. The expected cost of default.

Journal of Financial Economics, 119:284–299, 2016

Economic questions	How large are the expected costs of default? Can we reconcile these costs with leverage levels?

Main results	The average estimated cost of default is 45% of firm value, significantly higher than existing estimates. Can reconcile default costs & leverage levels.

Also interesting	Crucial to account for endogenous selection: Higher default cost $\Rightarrow$ Choose $\downarrow$ leverage $\Rightarrow$ $\downarrow$ Prob{default} $\Rightarrow$ $\downarrow$ Prob{end in sample of defaulted firms}.

Estimator	SMM

Data	Compustat, CRSP; book leverage, earnings growth, quasi-market leverage

Winston Wei Dou, Lucian A Taylor, Wei Wang, and Wenyu Wang. Dissecting bankruptcy frictions.

Journal of Financial Economics, 142(3):975–1000, 2021

Economic question	How efficient is corporate bankruptcy in the U.S.?
Main results	It's quite inefficient, mainly due to excess delay caused by creditor conflicts. Removing creditor conflicts and asymmetric info. would increase payouts by 22%.
Also interesting	Without frictions, 14% more cases would be resolved pre-court, and the remaining court cases would be 73% shorter.
Estimator	Simulated Minimum Distance
Data	Detailed data on Chapter 11 characteristics and outcomes for large U.S. firms.

Dean Corbae and Pablo D'Erasmo. Reorganization or liquidation: Bankruptcy choice and firm dynamics.

The Review of Economic Studies, 88(5):2239–2274, 2021

Economic question	How does bankruptcy law affect the financial decisions of corporations, and what are its implications for firm dynamics?
Main results	Changes to the law can have sizable consequences for borrowing costs and capital structure which, through selection, affect productivity, as well as long-run welfare.
Also interesting	
Estimator	Simulated Method of Moments (SMM)
Data	Compustat

Samuel Antill. Do the right firms survive bankruptcy?

Journal of Financial Economics, 144(2):523–546, 2022

Economic question	As in the title, do the "right" firms survive bankruptcy? That is, do observed choices of Chapter 11 exit (liquidation, acquisition, reorganization) maximize total creditor recovery?
Main results	Many firms that should be reorganized instead get liquidated. Expected creditor recovery would increase 12% if exit choice were always efficient.
Also interesting	Most of the loss comes from piecemeal liquidations involving "363 sales." By taking a model-based approach, courts could improve creditor recovery.
Estimator	Estimates a Roy (1951) selection model
Data	Moody's Ultimate Recovery Database, Bankruptcydata.com database, FRED

Promising areas for future research?

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Part 2: Deep dives on three papers

First paper

Why Are CEOs Rarely Fired? Evidence from Structural Estimation

LUCIAN A. TAYLOR*

Goals

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1. Evaluate rate of forced CEO turnover

Goals

1. Evaluate rate of forced CEO turnover

2. Quantify effects of CEO entrenchment on shareholder value

What I do

1. Develop and solve dynamic model of forced CEO turnover
   - ▶ Profitability depends on CEO's unobservable ability
   - ▶ Board learns about skill from profits and additional signal
   - ▶ Firing CEO is costly to board and shareholders

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2. Estimate model's parameters
   - ▶ Parameters include
     - ▶ Variation in ability across CEOs
     - ▶ Cost of turnover to shareholders
     - ▶ Personal utility cost of turnover to board
     - ▶ Parameters controlling speed of learning
   - ▶ Simulated method of moments (SMM)
   - ▶ Data on forced and voluntary CEO turnover, firm profitability

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3. Evaluate model fit, robustness

4. Counterfactual: What if personal costs were lower?

Model assumptions: Profitability, CEO skill, turnover costs

In each period t:

- ▶ Board decides whether or not to fire CEO
- ▶ CEO quits / retires with probability $f(\tau)$
- ▶ Firm generates profitablity Y_t :

$$\underbrace{Y_t}_{\text{firm profitability}} = \underbrace{v_t}_{\text{industry profitability}} + \underbrace{y_t}_{\text{firm-specific}} - \underbrace{\mathbf{1}\{fire_t\}\,c^{(firm)}}_{\text{CEO turnover cost}}$$

$c^{(firm)}$ includes separation pay, executive search fees...

- ▶ Firm-specific profitability reverts around $\alpha =$ CEO's skill:

$$y_t = y_{t-1} + \phi(\alpha - y_{t-1}) + \epsilon_t$$

$$\phi = \text{persistence parameter} \qquad \epsilon_t \sim N(0, \sigma_\epsilon^2)$$

Model assumptions: Learning

▶ New CEOs drawn from talent pool:

$$\alpha \sim N\left(\mu_0, \sigma_0^2\right)$$

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▶ New CEOs drawn from talent pool:

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▶ Board's prior beliefs:

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▶ Board uses Bayes' Rule to update beliefs about α each period
▶ Receives two signals about CEO skill, y_t and z_t

$$z_t \sim N\left(\alpha, \sigma_z^2\right)$$

Model assumptions: Board's preferences

$$
\max_{\{fire_{t+s}\}_{s=0}^{\infty}} U_t \equiv E_t \left[\sum_{s=0}^{\infty} \beta^s u_{t+s} \right]
$$

$$
u_t = \kappa \underbrace{B_t Y_t}_{\text{profits}} - \underbrace{B_t \mathbf{1}\{fire_t\} c^{(pers)}}_{\text{personal turn. costs}}
$$

$$
B_t = \text{firm assets}
$$

$c^{(pers)}$ includes loss of CEO as ally, search effort...

$\Rightarrow$ Board maximizes shareholder value (ex post) iff $c^{(pers)} = 0$

Predictions summary

- ▶ Board optimally fires CEO as soon as posterior mean skill drops below endogenous threshold
- ▶ Why are CEOs rarely fired? Potential reasons:
  - ▶ Entrenchment (high $c^{(pers)}/\kappa$)
  - ▶ Costly to shareholders (high $c^{(firm)}$)
  - ▶ CEO skill does not matter much (low σ_0)
  - ▶ Slow learning (low σ_0, high σ_ε, low ϕ, high σ_z)

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- ▶ Goal: Measure reasons' importance

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- ▶ Goal: Measure reasons' importance
- ▶ My approach: Estimate parameters

Data

- ▶ 981 CEOs who left office between 1971-2006
- ▶ Successions classified as either forced or voluntary
- ▶ Profitability during each year CEO in office

Identification

Set discount factor $\beta = 0.9$
Assume parameters constant across firms

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Assume parameters constant across firms

Parameter:	Mainly identified off:
Profitability persistence (ϕ)	AR1 coeff. for firm-specific profitability
Conditional volatility (σ_ϵ)	Volatility of profitability shocks
Prior mean skill (μ_0)	Average profitability
Prior stdev. skill (σ_0)	Dispersion in avg. profitability across CEOs
Total turnover cost $(c^{(firm)} + c^{(pers)}/\kappa)$	Frequency of firings
Firm turnover cost $(c^{(firm)})$	Event-time profits around firings
Stdev. of additional signal (σ_z)	Event-time profits around firings

SMM estimator

$$\theta \equiv \left\{ \mu_0, \sigma_0, \sigma_z, \sigma_\epsilon, \phi, c^{(firm)}/\kappa, c^{(pers)} \right\}$$

$$
\widehat{\theta} \;\; \equiv \;\; \arg\min_\theta \left(\widehat{M} - \frac{1}{S} \sum_{s=1}^{S} \widehat{m}^s \left(\theta \right) \right)' W \left(\widehat{M} - \frac{1}{S} \sum_{s=1}^{S} \widehat{m}^s \left(\theta \right) \right)
$$

$$\widehat{M} \;\; = \;\; \text{14 empirical moments}$$

$$\widehat{m}^s \left(\theta \right) \;\; = \;\; \text{14 moments from simulated data, which depend on } \theta$$

$$S \;\; = \;\; \text{20 simulations of length 981 CEO spells}$$

Sample simulated data same way as real data

$$W \;\; = \;\; \text{efficient weighting matrix}$$

$$f \left(\tau \right) \;\; = \;\; \text{hazard function for voluntary turnover, estimated nonparameterically}$$

14 moments for SMM estimation

▶ Pooled regression:

$$\underbrace{y_{it}^*}_{\text{excess profitability}} = \underbrace{\lambda_0}_{(1)} + \underbrace{\lambda_1}_{(2)} y_{i,t-1}^* + ...$$

$$\underbrace{\Delta^{(-2)} + \Delta^{(-1)} + \Delta^{(0)} + \Delta^{(1)} + \Delta^{(2)}}_{(3)-(7):\text{ fixed effects around forced CEO turnover}} + \underbrace{\delta_{it}}_{(8):\ Var(\delta_{it})}$$

▶ Other second moments of profitability:

$$X_{it} \equiv \text{persistence-adjusted excess profitability}$$
$$(9) \quad : \quad E\left[Var\left(X_{it}\right)\right] = \text{Avg. variability within CEO spells}$$
$$(10) \quad : \quad Var\left(E\left[X_{it}\right]\right) = \text{Variation across CEOs' averages}$$

▶ Hazard rates of forced CEO turnover at different tenure levels:

$$\underbrace{h^{(1-2)}}_{(11)} \qquad \underbrace{h^{(3-4)}}_{(12)} \qquad \underbrace{h^{(5-7)}}_{(13)} \qquad \underbrace{h^{(8+)}}_{(14)}$$

Parameter estimates

Firm turnover cost	$c^{(firm)}$	1.33
		(0.61)
Personal turnover cost	$c^{(pers)}/\kappa$	4.61
		(0.58)
Prior mean skill	μ_0	0.88
		(0.34)
Prior stdev. skill	σ_0	2.42
		(0.06)
Persistence parameter	ϕ	0.125
		(0.004)
Profitability stdev.	σ_ϵ	3.43
		(0.09)
Additional signal stdev.	σ_z	5.15
		(0.33)

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In dollars for median firm:

$$\begin{aligned} \text{Firm cost} &= \$57M \\ \text{Personal cost} &= \$197M \\ \text{Total cost} &= \$254M \end{aligned}$$

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▶ Not a 4.61% cost to directors

▶ Board is indifferent between firing CEO and seeing shareholders lose an extra 4.61% of assets

▶ Cannot determine whether
  ▶ board has strong distaste for firing CEO (high $c^{(pers)}$)
  ▶ board does not care about shareholder value (low κ)

Model fit: CEO turnover

	Empirical	Simulated
% of CEOs fired per year	2.29	2.16
% successions forced	17.1	16.2
Median spell length (years):		
Forced	4	4
Voluntary	7	7

Model fit: Profitability around CEO firings
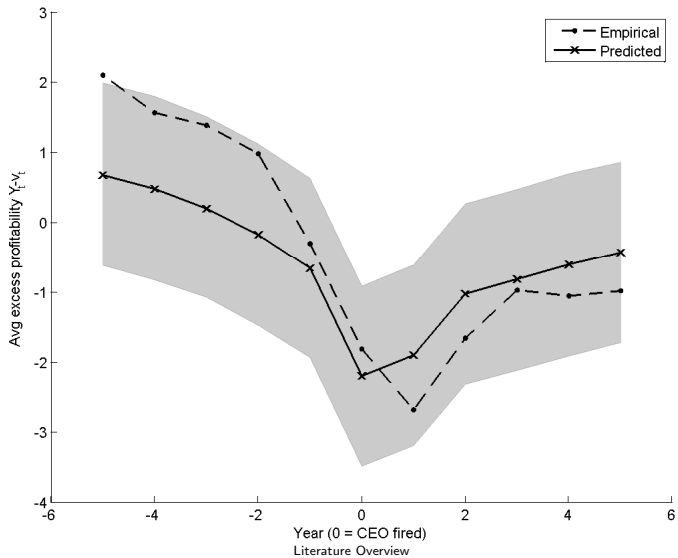
Effect of entrenchment on shareholder value

	Baseline	Counterfactual
Personal turnover cost	4.6%	0.0%
% of CEOs fired per year	2	13
Mean profitability per year	15.5%	16.0%
Mean M/B	1.55	1.60

Conclusion

▶ Main findings:
  ▶ Large CEO turnover cost needed to rationalize 2% firing rate
  ▶ Turnover cost mainly reflects entrenchment
  ▶ Eliminating entrenchment raises shareholder value by 3%
  ▶ Bayesian learning model fits several features of the data

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  ▶ Turnover cost mainly reflects entrenchment
  ▶ Eliminating entrenchment raises shareholder value by 3%
  ▶ Bayesian learning model fits several features of the data

▶ Possible interpretations:
  ▶ Wrong model $\rightarrow$ A quantitative CEO turnover puzzle
  ▶ "Right" model

Conclusion

▶ Main findings:
  ▶ Large CEO turnover cost needed to rationalize 2% firing rate
  ▶ Turnover cost mainly reflects entrenchment
  ▶ Eliminating entrenchment raises shareholder value by 3%
  ▶ Bayesian learning model fits several features of the data

▶ Possible interpretations:
  ▶ Wrong model $\rightarrow$ A quantitative CEO turnover puzzle
  ▶ "Right" model $\rightarrow$ Firing CEO imposes large personal costs on directors

What would I change if I could re-write my dissertation?

▶ Constant retirement rate $\rightarrow$ closed-form solution $\rightarrow$ GMM or MLE?

▶ Use data on stock returns

▶ Better disentangle firm's and CEO's contributions to profits
  ▶ Variation in prof. across CEOs contaminated by var. across firms?

▶ Discuss reduced-form turnover-performance regressions
  ▶ Huge number of papers regress 1(CEO turnover) on firm performance
  ▶ Not sure people are interpreting these regressions correctly
  ▶ According to model, how should we interpret these regressions?
  ▶ Can model point us to a more meaningful regression?
  ▶ (A missed opportunity)

▶ Use influence functions to get standard errors. Much easier!

▶ Etc. etc. etc.

Overview

Goals

- ▶ Describe what research has already been done
- ▶ Speculate about good areas for future research
- ▶ Give advice on doing structural estimation research

Plan for this session:

- ▶ Part 1: Broad, shallow survey of the literature
- ▶ Part 2: Deep dives on three papers:
    - ▶ Taylor, 2010, "Why are CEOs rarely fired? ..."
    - ▶ Dou, Taylor, Wang, Wang, 2021, "Dissecting bankruptcy frictions"
    - ▶ Wang, Whited, Wu, Xiao, 2022, "Bank market power..."

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Dissecting Bankruptcy Frictions

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Wei Wang (Queens)

Wenyu Wang (Indiana)

How efficient is corporate bankruptcy?

Economic frictions:

- Asymmetric information
- Conflicts of interest

Potential inefficiencies caused by frictions:

- Excess liquidation (should be reorganized, instead liquidated)
- Excess continuation (vice-versa)
- Excess delay $\rightarrow$ direct/indirect bankruptcy costs

Our goals:

- Quantify these inefficiencies
- Dissect their underlying causes

Our approach: Structural estimation

1. Solve a new bankruptcy model

- Dynamic bargaining between a senior and junior creditor
- Simultaneously bargain on financial $+$ business plans
- Creditor-specific reorganization skill
- Frictions:
    - Two-sided private information about reorganization skill
    - Each creditor maximizes its own payout, not total payout

2. Estimate by SMM

- Data on 311 large U.S. bankruptcies from 1996–2014

3. Run counterfactual experiments

- Turn off frictions, what changes?

Bankruptcy process is quite inefficient (ex post)

- Remove information asymmetry $\Rightarrow$ 4% $\uparrow$ in recovery value
- Also remove conflicts of interest $\Rightarrow$ extra 18% $\uparrow$ in recovery value

Summary of results

Bankruptcy process is quite inefficient (ex post)

- Remove information asymmetry $\Rightarrow$ 4% $\uparrow$ in recovery value
- Also remove conflicts of interest $\Rightarrow$ extra 18% $\uparrow$ in recovery value

Main inefficiency: Excess delay

- Remove frictions $\Rightarrow$
    - (1) Extra 14% cases resolved pre-court
    - (2) Remaining court cases 73% shorter
- Less delay $\Rightarrow$ less costs (direct and indirect)

Other inefficiencies?

- Excess liquidation and continuation are small

Assumptions (1/3): Basics

Players

- Insolvent firm
- Senior debt $= D_S$, junior debt $= D_J$, total debt $= D = (D_S + D_J)$
- Each creditor rationally maximizes her expected payout

Periods and costs
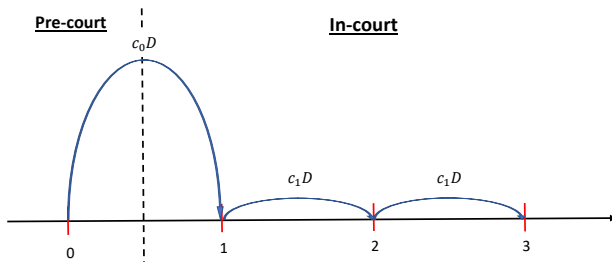
Accumulated costs up to period t: $C_t = \mathbf{1}_{\{t>0\}} \left(c_0 + c_1 t\right) D$

Liquidation

- Total payout $= L - C_t$
- APR: seniors paid first, then juniors

Reorganization

- Total payout $= V_t \theta_{k,t} - C_t$
  - V_t = maximum reorganization value at $t = \rho^{t-1} V_0$
  - $1 - \rho$ = value erosion (a form of indirect bankruptcy costs)
  - $\theta_{k,t}$ = reorganization skill of creditor k (private information)
- Skill increases randomly over time (learning):

  $$\theta_{k,t+1} | \theta_{k,t} \sim \text{Generalized Beta}\,(\theta_{k,t}, \beta)\ \text{with}\ k \in \{S, J\}$$
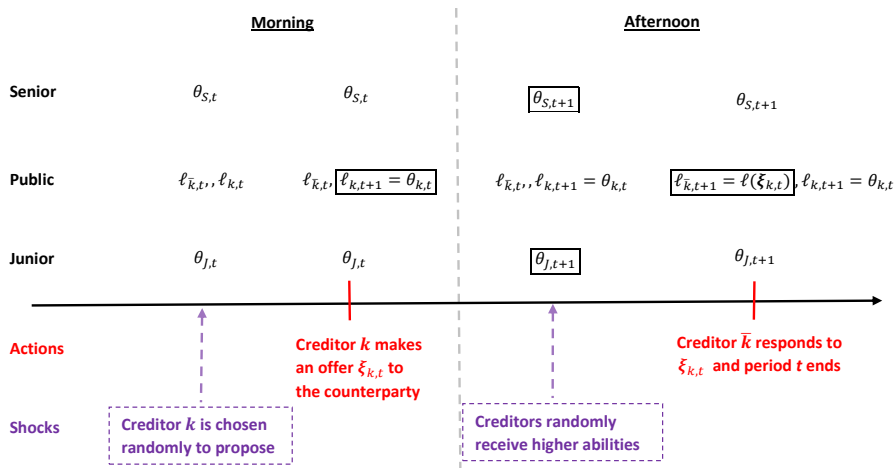
Asymmetric information

$\Rightarrow$ Uncertainty about counterparty's skill $\uparrow$

$\Rightarrow$ To avoid overpaying, incentive to make low-ball offers $\uparrow$

$\quad\Rightarrow$ Rejection rate $\uparrow$ $\Rightarrow$ delay $\uparrow$ $\Rightarrow$ costs $\uparrow$

$\quad\Rightarrow$ Screening of counterparty's skill $\downarrow$ $\Rightarrow$ Asym. info. $\uparrow$

Conflicts of interest

$\Rightarrow$ In hopes of gaining bargaining power, incentive to reject offers $\uparrow$

$\quad\Rightarrow$ Rejection rate $\uparrow$ $\Rightarrow$ delay $\uparrow$ $\Rightarrow$ costs $\uparrow$

Data

Sample: 311 Chapter 11 filings, 1996-2014

Sources:

- UCLA LoPucki Bankruptcy Research Database
- New Generation Research
- Electronic court records (PACER)
- National archives
- Compustat

Filters:

- Public company
- Assets > $100M (1980 dollars)
- Non-financial firms
- At least 2 debt classes

SMM estimation and identification

Estimate 7 parameters by matching 9 moments:

Moment	Helps identify parameter...
1. Avg. months between plans	Months per period (μ)
2. Fraction resolved in court	Cost of going to court (c_0)
3. S: avg. recovery | pre-court reorg.	Senior's initial ability ($\theta_{S,0}$)
4. J: avg. recovery | pre-court reorg.	Junior's initial ability ($\theta_{J,0}$)
5. Junior's fraction of gain	Junior's prob. of proposing (λ_J)
6. Frac. reorganized | in-court	Inverse speed of learning (β)
7. Avg. log duration in court	Persistence of reorganization value (ρ)
8. Avg. total recovery rate	Multiple parameters
9. Slope(log recovery, duration)	Multiple parameters

Note: Junior's fraction of gain $= \dfrac{\text{Junior payout}}{\text{Total payout}}$

Simulated and data moments are statistically indistinguishable

SMM estimation and identification

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Estimate 7 parameters by matching 9 moments:

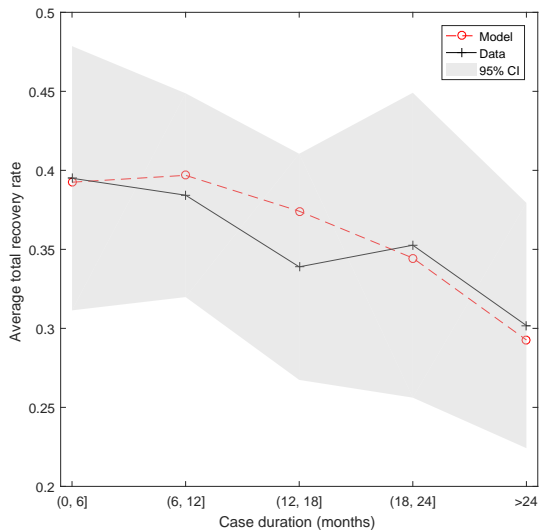| Moment	Helps identify parameter...
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Simulated and data moments are statistically indistinguishable

Model fit – untargeted distributions
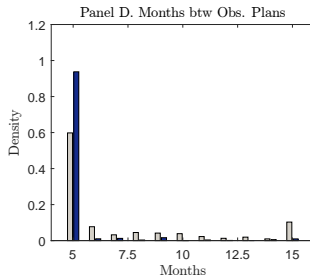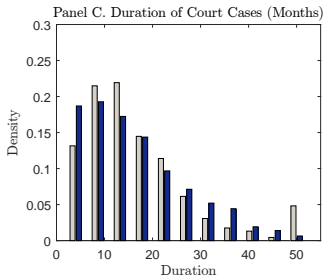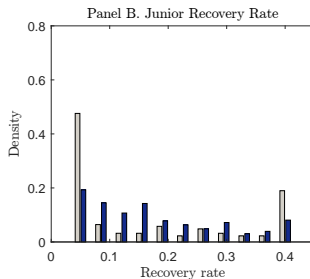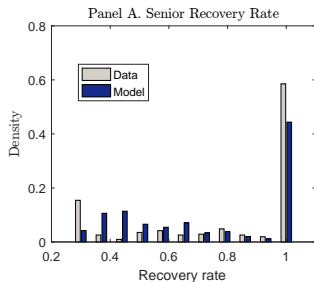
Model fit – total recovery rate vs. duration

Parameter estimates

Parameter	Notation	Estimate	Std. Error
Months Per Period	μ	4.566	0.609
Senior's Initial Reorganization Skill	$\theta_{S,0}$	0.281	0.036
Junior's Initial Reorganiztion Skill	$\theta_{J,0}$	0.364	0.016
(Inverse) Speed of Creditor Learning	β	9.835	1.046
Persistence of Reorganization Value	ρ	0.884	0.006
Fixed Cost of Going to Court (%)	c_0	4.400	0.867
Junior's Probability of Proposing	λ_J	0.346	0.088

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(Inverse) Speed of Creditor Learning	β	9.835	1.046
Persistence of Reorganization Value	ρ	0.884	0.006
Fixed Cost of Going to Court (%)	c_0	4.400	0.867
Junior's Probability of Proposing	λ_J	0.346	0.088

Average Total Recovery Rate

| | Counterfactual Models | |
Estimated Model	Symmetric Information	Social Planner
0.351	0.365	0.429

Quantifying inefficiencies

Average Total Recovery Rate

	Counterfactual Models	
Estimated	Symmetric	Social
Model	Information	Planner
0.351	0.365	0.429

- Observed bankruptcy process is quite inefficient
- Removing asymmetric information → 4% increase
- Removing conflicts of interest → extra 18% increase
- Avg. value destroyed per year ≈ \$11B

Decomposition:

Average Total Recovery Rate $=$

> Frac(Liquidated) $\times$ Avg. Liquidation Value
>
> $+$ Frac(Reorganized) $\times$ Avg. Reorganization Value
>
> $-$ Average Accumulated Costs

Decomposition:

Average Total Recovery Rate =

        Frac(Liquidated)   × Avg. Liquidation Value **(5%)**

       + Frac(Reorganized) × Avg. Reorganization Value **(83%)**

       − Average Accumulated Costs **(12%)**

Where is the inefficiency coming from?

| | | Counterfactual Models | |
Simulated Statistic	Estimated Model	Symmetric Information	Social Planner
Avg. Reorganization Value	0.411	0.425	0.493
Fraction Resolved Pre-Court	0.299	0.333	0.436
Avg. Duration of Court Cases	16.7	13.4	4.5

Where is the inefficiency NOT coming from?

		Counterfactual Models	
Simulated Statistic	Estimated Model	Symmetric Information	Social Planner
Fraction Reorganized	0.791	0.802	0.819
Avg. Gain from Eliminating Excess Liq. and Reorg.	0.000	0.0048	0.0051
Avg. Loss Due to Low-Skill Reorganization	0.0094	0.0089	0.000

Corporate bankruptcy in the U.S. is quite inefficient

Frictions:

- Asymmetric information between creditors
- Conflicts of interest between creditors

Eliminating these frictions → average total payouts ↑ 22%

- By making cases resolve faster (↓ excess delay)
- Surprisingly small: excess liquidation, excess continuation