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Contents

The Anatomy of the Transmission of Macroprudential Policies

区别	Macroprudential Policies	Microprudential Policies
监管目标	防范系统性风险，维护金融体系的整体稳定，防止经济增长(如GDP)受影响	控制个体金融机构或行业的风险，保护投资者利益
监管内容	侧重对金融机构的整体行为以及金融机构之间相互影响力的监管上，同时关注宏观经济的不稳定因素	侧重对金融机构的个体行为和风险偏好的监管
监管对象	关注具有系统重要性金融机构(如银行和金融集团)的行为，金融市场整体趋势及其与宏观经济的相互影响	关注具体金融机构的合规与风险暴露情况，避免使投资者和储户等个体遭受不应有的损失等事件

相互促进，增强彼此的监管效果

An example

银行的信用风险敞口监管

宏观审慎监管措施

银行业整体的信贷规模及其与有关资产价格的关系，并据以判断银行体系是否正在积累信用风险

微观审慎监管措施

该银行信贷资产的集中度和相关放贷政策

Abstract

Question

regulatory constraints on household leverage  affect

- residential mortgage credit
- house prices
- other asset classes not directly targeted by the limits

Explain: ① Constraint form, loan-to-income(LTI) and loan-to-value(LTV) limits

② Other asset classes, securities holdings and corporate credit of banks

Finding

- mortgage credit is reallocated from low- to high-income borrowers and from urban to rural counties
- This reallocation weakens the feedback between credit and house prices and slows house price growth in "hot" housing markets feedback loop
- Banks whose lending to households is more affected by the regulatory constraint drive this reallocation, but also substitute their risk-taking into holdings of securities and corporate credit

Motivation

Practical Level：

• Since 1990, policymakers in more than 60 countries have adopted macro prudential policies →limit household leverage →slow down the feedback loop between credit and house prices

Theoretical Level:

• By showing that a buildup of household leverage eventually leads to busts, lower output growth, and higher unemployment (Jorda, Schularick & Taylor , 2016; Mian, Sufifi & Verner , 2017), academic literature has highlighted the importance of these policies

Focus on Ireland:

- To avoid a recurrence of this boom-bust cycle, the central bank introduced new macroprudential rules---**lending limits**

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10/2014 2/9/2015

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First discuss Implement

LTI limit is 3.5

LTV limit depends on the borrower type

LTI limit is 3.5

LTV limit depends on the borrower type

First discuss Implement

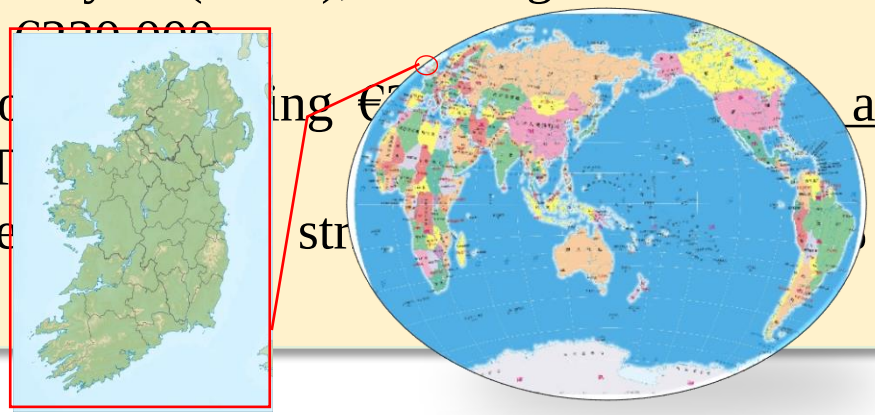
- In the words of Patrick Honahan, then governor of the Central Bank of Ireland, "*What we are trying to prevent is another psychological loop between credit and prices and credit. If we avoid that, we can keep banks safe, we can keep borrowers safe*."

✓ Lending for primary-dwelling housing (PDH) is limited to 80% LTV.

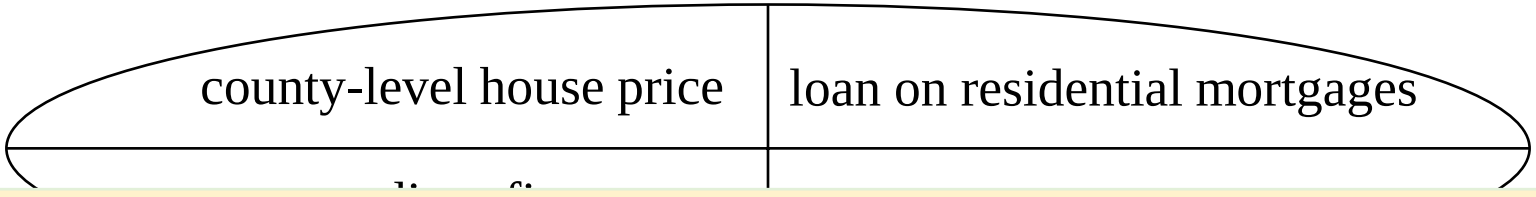
✓ For first-time buyers (FTBs), a more generous LTV limit of 90% is imposed for houses up to €220,000

✓ For any amount over €220,000 faces an 80% LTV

✓ The measure for buy-to-let (BTL) properties



Combining the following four types data



Few papers analyzing LTV/LTI limits imposed in other countries:
Dodd-Frank "Ability-to-Repay" rule (similar to an LTI limit) successfully reduced borrower leverage(DeFusco, Johnson & Mondragon, 2020); LTV limits caused Dutch borrowers to increase their down payments (Van Bekkum et al., 2019)……

One paper analyze the same Irish macroprudential policy: LTV fell for first-time and subsequent time buyers (Kinghan, McCarthy & O'Toole, 2019)

transmission of macroprudential policies

- Most important contribution

focus on house prices and reallocation of mortgage credit across the income and geographical distributions; represents the most comprehensive analysis of how macroprudential policies in mortgage credit have operated in practice in a country

Based estimate method

$$Y_{cht} = \alpha + \beta Post_t \times Distance_{ch} + X_{cht} + \gamma_{ct} + \eta_{ch} + \mu_{ht} + \epsilon_{cht}$$

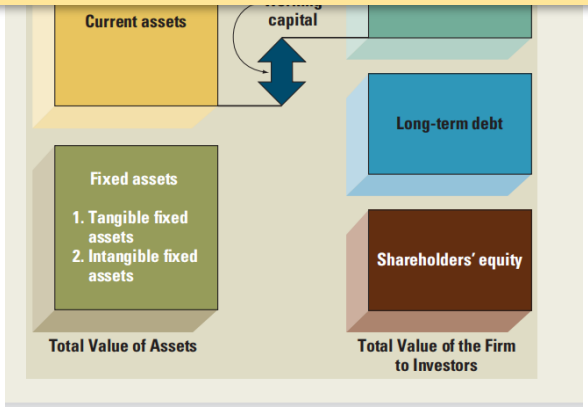
- Dependent variable--- the logarithm of total mortgage volume, the logarithm of

How distance variable represents the distributions on the income and geography
Answer: low-distance borrowers → low-income borrowers (urban-hot housing market)
high-distance borrowers → high-income borrowers (rural-cold housing market)

- Others: *c* is a county, *t* is a month, and *h* is a borrower income bucket, with borrowers divided into 20 income buckets. The sample includes 24 months and runs from February 2014 to January 2016. The key independent variable is the interaction term between a *Post* dummy equal to one from February 2015 to January 2016 (12-month period after the policy implementation) and the (prepolicy) distance from the lending limits for each income bucket-county pair

The Cost of Capital for Banks: Evidence from Analyst Earnings Forecasts

The conservation-of-risk principle states that changing how a given cash flow stream is divided among investors will not change the total value of that cash flow stream, because, in aggregate, the risk being held is not changed by how it is divided among investors. ⇨⇨⇨Therefore, under this principle, the portfolio of debt and equity issued by a bank should have the same risk characteristics as the bank's total assets. In turn, because the risk characteristics are the same, the expected portfolio return and the bank's expected total asset return should also be identical.



from current and long-term debt and equity.

Modigliani and Miller (MM or M & M) have a convincing argument that a firm cannot change the total value of its outstanding securities by changing the proportions of its capital structure. In other words, the value of the firm is always the same under different capital structures. In still other words, no capital structure is any better or worse than any other capital structure for the firm's stockholders. This rather pessimistic result is the famous **MM Proposition I**.[2]

This type of reasoning allows us to develop **MM Proposition II**. Here MM argue that the expected return on equity is positively related to leverage because the risk to equity-holders increases with leverage.

股权融资vs债务融资：E风险<D风险 E成本>D成本

Abstract

We extract cost of capital measures for banks using analyst earnings forecasts, which we show are unbiased

finding

- The cost of equity and the cost of debt decrease in the Tier 1 ratio, whereas total cost of capital is uncorrelated with the Tier 1 ratio

Cost of Equity Capital

This table presents estimated coefficients for regressions with the cost of equity capital (in percentage points) as the dependent variable (defined in Section I.B). In the first three columns, Tier 1 and 2 capital are scaled by risk-weighted assets; in the last three columns, they are scaled by total assets. Deposits to assets is the book value of deposits to book value of assets. OBE to assets is off-balance-sheet liabilities to assets. The regressions are calculated with robust standard errors clustered over bank and month. *** denotes significance at the 1% level, ** at the 5% level, and * at the 10% level.

RWA, risk-weighted assets

	Tier Capital to RWA			Tier Capital to Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	r^e	r^e	r^e	r^e	r^e	r^e
Tier1 ratio	−8.429***	−6.414***	−7.304***	−12.132***	−9.54***	−13.598***
	(1.509)	(1.873)	(2.192)	(2.68)	(2.646)	(2.689)
Tier2 ratio	−3.326*	−2.866	3.175	13.225*	−6.11	8.967
	(1.852)	(2.68)	(3.528)	(7.351)	(5.997)	(6.41)
Deposits to assets	−0.483	−0.568	0.609	0.69	−0.858	0.422
	(0.655)	(0.549)	(0.758)	(0.829)	(0.58)	(0.776)
RWA to assets		1.748***	−0.498		2.958***	0.626
		(0.413)	(0.604)		(0.413)	(0.58)
OBE to assets		18.591**	48.098***		15.756	49.443***
		(9.484)	(14.296)		(10.052)	(14.521)
Observations	41,820	25,415	25,415	26,864	26,864	26,864
R^2	0.698	0.338	0.623	0.621	0.34	0.625
Bank FE	Yes	No	Yes	Yes	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes

Cost of Debt Capital

This table presents estimated coefficients for regressions with the cost of debt capital (in percentage points) as the dependent variable (defined in Section I.C). In the first three columns, Tier 1 and 2 capital are scaled by risk-weighted assets; in the last three columns, they are scaled by total assets. Deposits to assets is the book value of deposits to book value of assets. OBE to assets is off-balance-sheet liabilities to assets. The regressions are calculated with robust standard errors clustered over bank and month. *** denotes significance at the 1% level, ** at the 5% level, and * at the 10% level.

	Tier Capital to RWA			Tier Capital to Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	r^d	r^d	r^d	r^d	r^d	r^d
Tier1 ratio	−1.577***	−1.287	−2.397***	−4.662***	−1.185	−4.002***
	(0.585)	(1.224)	(0.647)	(1.041)	(1.671)	(0.93)
Tier2 ratio	0.986	−2.459	−0.166	−0.017	−11.775***	1.836
	(0.721)	(1.59)	(0.949)	(2.236)	(3.512)	(1.965)
Deposits to assets	−0.582**	−2.589***	−0.328	−0.443	−2.75***	−0.318
	(0.247)	(0.334)	(0.288)	(0.282)	(0.302)	(0.277)
RWA to assets		0.659**	−0.605***		1.276***	−0.25
		(0.283)	(0.227)		(0.26)	(0.216)
OBE to assets		−30.176***	−22.195***		−25.701***	−22.229***
		(3.956)	(6.085)		(3.927)	(5.994)
Observations	38,561	23,935	23,935	25,293	25,293	25,293
R^2	0.964	0.845	0.961	0.96	0.845	0.961
Bank FE	Yes	No	Yes	Yes	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes

Total Cost of Capital

This table presents estimated coefficients for regressions with the total cost of capital (in percentage points) as the dependent variable (defined in Section I.D). In the first three columns, Tier 1 and 2 capital are scaled by risk-weighted assets; in the last three columns, they are scaled by total assets. Deposits to assets is the book value of deposits to book value of assets. OBE to assets is off-balance-sheet liabilities to assets. The regressions are calculated with robust standard errors clustered over bank and month. *** denotes significance at the 1% level, ** at the 5% level, and * at the 10% level.

	Tier Capital to RWA			Tier Capital to Assets		
	(1)	(2)	(3)	(4)	(6)	(7)
Variables	r^{total}	r^{total}	r^{total}	r^{total}	r^{total}	r^{total}
Tier1 ratio	−0.494	0.99	−0.008	−0.493	1.953	−0.322
	(0.564)	(1.566)	(0.691)	(0.986)	(2.16)	(0.985)
Tier2 ratio	0.75	−0.733	1.034	1.052	−7.16*	0.869
	(0.597)	(2.109)	(0.888)	(2.114)	(3.793)	(2.065)
Deposits to assets	−0.746***	−2.275***	−0.369	−0.424*	−2.366***	−0.381
	(0.216)	(0.318)	(0.245)	(0.239)	(0.289)	(0.241)
RWA to assets		1.076***	0.183		1.187***	0.182
		(0.333)	(0.193)		(0.27)	(0.18)
OBE to assets		−23.327***	−17.024***		−19.43***	−17.112***
		(3.603)	(5.272)		(3.47)	(5.234)
Observations	38,561	23,935	23,935	25,293	25,293	25,293
R^2	0.962	0.872	0.959	0.957	0.872	0.958
Bank FE	Yes	No	Yes	Yes	No	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes

Abstract

We extract cost of capital measures for banks using analyst earnings forecasts, which we show are unbiased

finding

- The cost of equity and the cost of debt decrease in the Tier 1 ratio, whereas total cost of capital is uncorrelated with the Tier 1 ratio

suggest

Investors adjust their return expectations for banks in accordance with the Modigliani–Miller conservation-of-risk principle → Hence, increased capital requirements are *not* made socially costly based on a notion that market pricing violates risk conservation.

- Equity can nevertheless still be privately costly for banks because of reduced subsidies.

Motivation

In the debate on the costs and benefits of banking regulation

- A key question of interest: whether loss-absorbing capital in the form of equity is socially costly⇨⇨The main theoretical argument for why equity capital is not a costly funding source is the Modigliani-Miller (1958) conservation-of-risk principle

The most important contribution:

- Show empirically that investors adjust their return expectations for banks in accordance with the conservation-of-risk principle👍→has important implications for the assessment of social costs in regards to banks' regulatory capital requirements, in particular, equity funding is not made socially costly based on the notion that market pricing violates risk conservation
- Our findings provide empirical support for those studies that argue that the conservation-of-risk principle applies to banks (Miller, 1995; Pfleiderer, 2010; Admati et al., 2013; Admati & Hellwig, 2013)

Research Process

- Total cost of capital definition: the discount rate applied to the future expected cash flows available to all investors
- Explanation: this discount rate represents a private cost for the bank and is given as the portfolio-weighted cost of equity and debt. Ultimately, these costs are determined by the rates of return required by investors. The private cost of obtaining funding need not be the same as the social cost. An increase in equity funding would then likely decrease bank value and potentially also change the total cost of capital

Empirical analysis

Two parts

First, examine whether risk conservation violations could be a source of social costs. In our main test, we show that the total cost of capital for a given level of asset risk is invariant to the level of equity funding, the cost of equity and debt are both decreasing in the level of equity funding, consistent with risk conservation. These findings rule out private and social costs originating from market pricing violations of risk conservation

Second, we examine the impact of implicit and explicit government subsidies: the tax shield of debt, the too-big-to-fail guarantee, and depositor insurance

Measuring Expected Return on Debt Capita

total cost

of the quarter. For bank i at time t, we have

$$r^d_{i,t} = \frac{\sum_{k=1}^{4} Intere}{\frac{1}{4}\sum_{j=0}^{3} Del}$$

where $r^d_{i,t}$ is the average cost of debt, *Inte* quarter t and $Debt_{i,t}$ is the total debt oblig ter t. Since a large part of banks' debt obliga using interest payments over a one-year ho the true cost of debt. Moreover, while most

ings foreca

Estimate S

capital (i.e., equity funding). Since banking regulation is based on the ratios of Tier 1 capital to RWA and Tier 1 capital to total assets, we use both of these ratios to proxy for the level of equity funding.[11] A significant positive association between the Tier 1 capital ratios and the total cost of capital could potentially indicate a violation of risk conservation, which would imply that it is privately costly for banks to obtain higher levels of loss-absorbing capital and comply with increased regulatory capital requirements. A violation of risk conservation could also potentially imply a social cost, as discussed in the Introduction.

We use the following regression specification:

$$\begin{aligned} Cost\ of\ capital_{i,t} = {} & \beta_1 \times Tier\ 1\ ratio_{i,t} + \beta_2 \times Tier\ 2\ ratio_{i,t} \\ & + \beta_3 \times Deposit\ ratio_{i,t} \\ & + Bank\ fixed\ effects_i + Time\ fixed\ effects_t + \epsilon_{i,t}, \end{aligned} \tag{7}$$

where t denotes month and i denotes bank. Time fixed effects capture general market trends.[12] Bank fixed effects capture a bank's business model and hence asset risk (we verify this interpretation below). All regressions are estimated with robust standard errors clustered by bank and month.

Equity Capital

sually called the ICC. The ICC measure is iterature (e.g., Pastor, Sinha, and Swami- e Lee, So, and Wang (2021) for an overview g. In most ICC models, ICC is constructed into expected future dividends and then pression for the discount rate,

$$\cdot \frac{\mathbb{E}_t[DIV_{i,t+n}]}{(1+ICC_{i,t})^n}, \tag{2}$$

uity and $DIV_{i,t+n}$ is the future cash flows

ial Brokers

Commodity Financialization and Information Transmission

AUTHOR: ITAY GOLDSTEIN LIYAN YANG

Abstract

We provide a model ① to understand the effects of commodity futures financialization② on various market variables③

We distinguish between financial speculators and financial hedgers and study their separate and combined effects on the informativeness of futures prices, the futures price bias, the comovement of futures prices with other markets, and the predictiveness of financial trading

We capture the interactions between commodity futures financialization and real economy through spot prices and production decisions.
A dynamic extension illustrates how key variables change over time in a period of acute financialization in a way that is consistent with observed empirical patterns.

① static model and dynamic model ② financial speculators (trading on information) and financial hedgers (trading to improve the efficiency of their broader financial portfolios) enter the market in constant proportion ③ key interested variables in empirical literatures: price informativeness, futures price bias, commodity-equity market comovement, return predictiveness of financial positions

Motivation

The twenty-first century has seen many developments and changes in finance

A prominent one among them is the financialization of commodity futures markets. Commodity futures markets have seen a clear trend of financialization over the period 2004 to 2009, marked by the increased participation of financial traders

2011 Report of the G20 Study Group on Commodities (p.29) notes---"the discussion centers around two questions. First, does increased financial investment alter demand for and supply of commodity futures in a way that moves prices away from fundamentals and/or increase their volatility? Second, does financial investment in commodity futures affect spot prices?"

This trend led to a surge in academic studies, including work by Tang and Xiong (2012), Cheng & Xiong (2014), Basak & Pavlova (2016), Bhardwaj, Gorton, & Rouwenhorst (2016)

Largely empirical studies: document trading behavior of financial traders in futures markets and their pricing impact ➞often yields conflicting messages on the implications of financialization

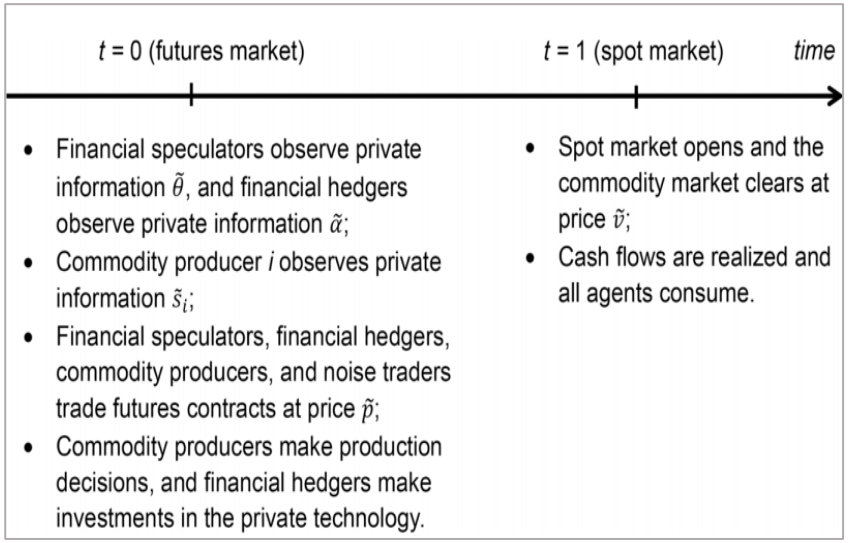
Theoretical research scarce:

While offer important insights, they all feature symmetric information and do not address key channels of our model involving price informativeness & learning

This paper develops a model that aims to provide a unified proach to better understand the mechanisms and interpret the empirical findings + highlights different channels through which financialization affects prices and real outcome, in particular, financial trading injects both information and noise into the futures market through the behavior of different types of financial traders ⇨⇨⇨ **Contrbutions**

Model

static model



two periods: $t = 0$ and 1

At date 0, the financial market opens, and financial speculators and financial hedgers trade futures contracts against commodity producers and noise traders, commodity producers make their production decisions at date 0, which determine the commodity supply in the spot market that operates later at date 1

A detailed depiction---the spot market and the future market

The spot market equilibrium

The commodity producers' problem:

$$\max_{x_i+d_{P,i}}\left[E(\tilde{v}-\tilde{p}|\tilde{s}_i,\tilde{c},\tilde{p})(x_i+d_{P,i})-\frac{\beta \mathrm{var}(\tilde{v}|\tilde{s}_i,\tilde{c},\tilde{p})(x_i+d_{P,i})^2}{2}\right]+\max_{x_i}[\tilde{p}x_i-C(x_i)]$$

The date-1 spot price:

$$\tilde{v}=\tilde{\theta}+\tilde{\delta}+h\tilde{c}-h\tilde{p}.$$

$\tilde{v}$ the commodity spot price

$\tilde{\theta}$ $\tilde{\delta}$ exogenous shocks to consumers' commodity demand

h is a positive constant

$\tilde{c}$ supply shock

$\tilde{p}$ Future price

The futures market equilibrium

We use the market-clearing condition to construct a linear price function

→compute demand function of futures market participants

$$m_\xi=\frac{\tau_\varepsilon}{\beta}\frac{\tau_\delta}{\tau_\theta+\tau_\varepsilon+\tau_p+\tau_\delta}+\lambda_S\tau_\delta$$

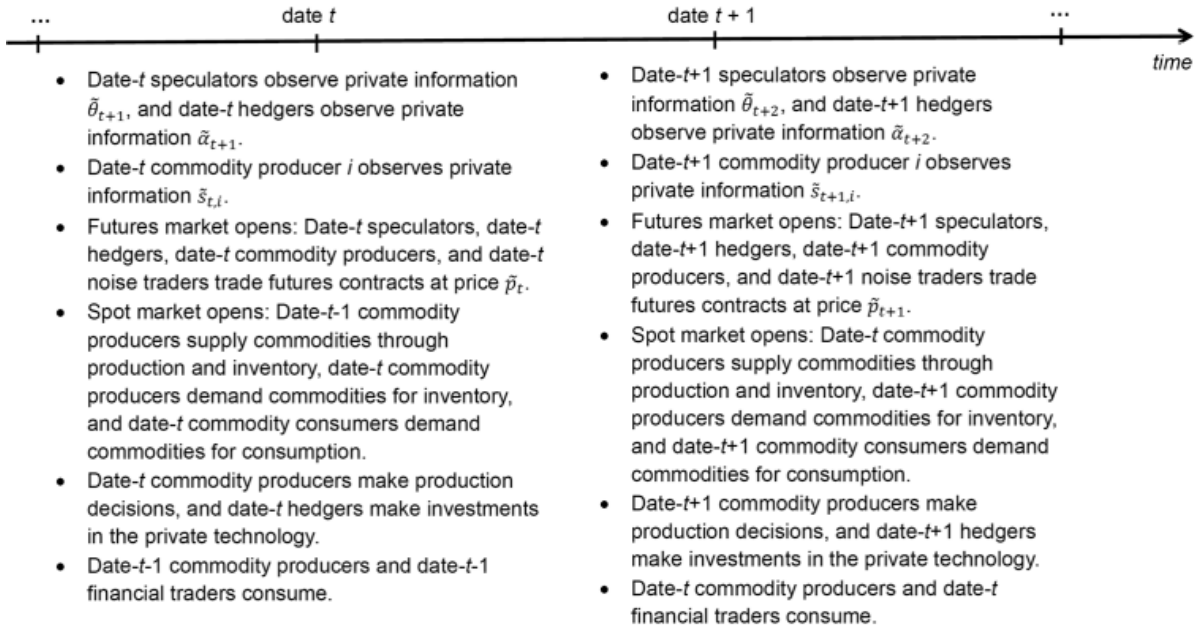
m_ξ A ratio in original system, is bounded, higher means that the price $\tilde{p}$ is more sensitive to the fundamental $\tilde{\theta}$ relative to exogenous noise trading $\tilde{\xi}$

τ_p price informativeness

λ_S the mass of financial speculators

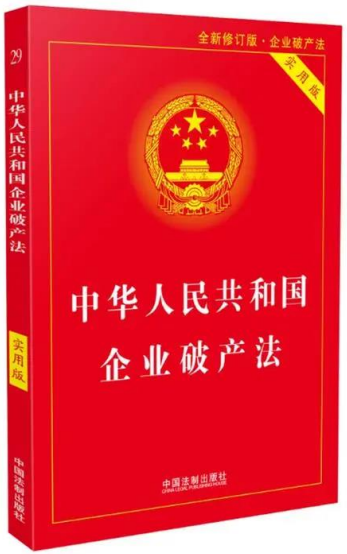
Dynamic model

we expand our model into a dynamic OLG setting to better map to the empirical settings and show how the interaction between different forces drives time variation in the key variables of interest. Our analysis also provides an approach to computing a nonstationary equilibrium in which the sizes of investor populations increase over time.



Conclusion

- Financialization in its early stages is likely to improve price efficiency while later stage financialization is likely to decrease it
- Our analysis highlights a supply channel through which the commodity futures market affects the spot market
- And we show that the implications for the real economy are quite complex: while commodity producers see higher operating profits when financialization improves market efficiency, financialization is overall value-decreasing due to reduced opportunities in futures market trading



◆《中华人民共和国企业破产法》是为规范企业破产程序，公平清理债权债务，保护债权人和债务人的合法权益，维护社会主义市场经济秩序，制定的法律

有权提出破产申请的人

- 债权人：债权发生的事实及相关证据；债券性质和数额；债券担保的证明；债务人不能清偿到期债务
- 债务人：企业亏损的证明；有关会计报表企业财产状况明细；债权清册和债务清册；上级主管部门同意申请破产的意见
- 清算人：企业法人已解散，但未清算或者未清算完毕，资产不足以清偿债务的，负有清算责任的人应向人民法院申请破产

Abstract

Question:

creditor protection —How affects→ firms with different levels of owners' and managers' personal costs of bankruptcy (PCB)

Finding:

Theoretically

under a more debtor-friendly management stay system → firms with high PCB → borrow and invest more

under a more creditor friendly receivership system → firms with low PCB → borrow and invest more

Intuitively

stronger creditor protection → relaxes financial constraints but reduces credit demand

Which effect dominates depends on owners' and managers' PCB

Empirically

support for these predictions using a Korean bankruptcy reform that replaced receivership with management stay

Motivation

Empirical evidence on the optimal degree of creditor protection in bankruptcy is mixed

Following the seminal work of La Porta et al. (1997,1998), a number of studies document a positive relationship between creditor protection and the size of credit markets	While several recent studies suggest a negative relationship (Acharya & Subramanian, 2009; Acharya, Amihud, & Litov, 2011; Vig, 2013)

Given these opposing views

when firms borrow and invest more or less as creditor protection increases? that is, when bankruptcy law should be more creditor- or more debtor-friendly? remains an open question

implication

Answering this question is crucial for policymakers who need to determine the optimal degree of creditor protection

when firms borrow and invest more or less as creditor protection increases? that is, when bankruptcy law should be more creditor- or more debtor-friendly? remains an open question

To address this question

- we need to understand what determines firm responses to changes in creditor protection?
- Answer: The theory points to personal costs of bankruptcy (PCB) for firm owners and managers as an important factor

specifically

Stronger creditor protection ↑ → Can increase → owners' and managers' PCB ↑

PCB → can reduce / mixed / can strengthen → the incentives of owners and managers to invest in valuable but risky investment project

This paper focuses on

Research Process---Part one

Korea's institutional environment

motivated by

develop a theoretical model

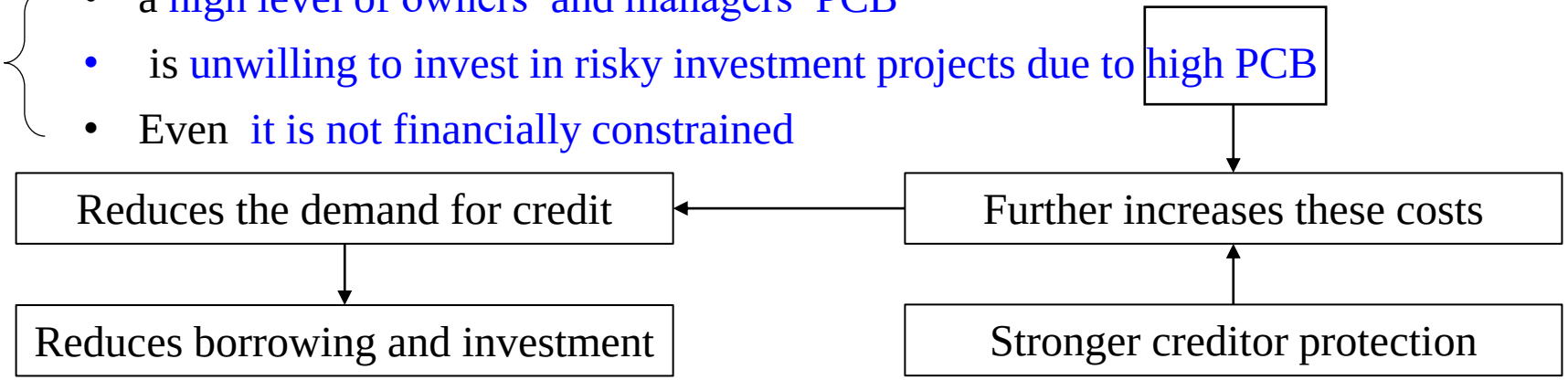
- The model borrows features from Bolton and Scharfstein (1990), Zwiebel (1996), and Holmström and Tirole (1997)
- Objective: determine how the level of owners' and managers' PCB affects firms' borrowing and investment in a receivership system compared with a management stay system===to show the level of owners' and managers' PCB determines whether a firm borrows and invests more or less as creditor protection increases

A firm

PROPOSITION 1: *There exists a threshold $\bar{B} > 0$ such that the probability of investment is higher under receivership compared with management stay if $B < \bar{B}$, and the probability of investment is lower under receivership compared with management stay if $B > \bar{B}$.*

Start

- a high level of owners' and managers' PCB
- is unwilling to invest in risky investment projects due to high PCB
- Even it is not financially constrained



Research Process---Part two

empirical analysis

- data from the Korea Information Service (KIS)

We start our analysis by assessing differences in borrowing and investment for the average firm under the prereform receivership system compared with the postreform management stay system by estimating

$$Y_{i,t} = \alpha_i + \alpha_{ind,t} + \gamma_1 \cdot controls_{i,t-1} + \gamma_2 \cdot controls_{i,t-1} * reform_t + \delta_1 \cdot treated_i + \delta_2 \cdot reform_t + \delta_3 \cdot treated_i * reform_t + \epsilon_{i,t}, \quad (4)$$

where $Y_{i,t}$ is the value of the outcome of interest for firm i in year t,[14] $controls_{i,t-1}$ is a set of lagged control variables,[15] the dummy variable $reform_t$ takes the value of zero before the reform (2001 to 2005) and one after the reform (2006 to 2010), and $treated_i$ is a variable that captures the degree to which firm i is affected by the reform. Firm fixed effects α_i ensure that we

[14] The outcome variables that we examine are interest rates ($IR_{i,t}$), debt to assets ($DebtA_{i,t}$), investment to assets ($InvA_{i,t}$), profit growth ($\Delta\ Profits_{i,t}$), return on assets ($ROA_{i,t}$), and different measures of the riskiness of firm investment.

Next, to assess how owners' and managers' PCB affect firms' borrowing and investment under the prereform receivership system compared with the postreform management stay system, we estimate

$$Y_{i,t} = \alpha_i + \alpha_{ind,t} + \gamma_1 \cdot controls_{i,t-1} + \gamma_2 \cdot controls_{i,t-1} * reform_t + \beta_1 \cdot B_i + \beta_2 \cdot reform_t + \beta_3 \cdot B_i * reform_t + \epsilon_{i,t}, \quad (5)$$

OC, managers' IO, and managers' DR.

where B_i is a quintile rank variable ranging from one for firms with PCB in the lowest quintile to five for firms with PCB in the highest quintile, sorted in 2005, the year before the reform applies. All other variables are defined

Finally,

estimate equation (4) separately for high-*B* and low-*B* firms

Rare Disasters, Financial Development, and Sovereign Debt

SERGIO REBELO, NENG WANG, and JINQIANG YANG

- Rare disasters: sporadic downward jumps in output
- Financial development: the extent to which a country can issue debt denominated in domestic currency in international capital markets---the extent ↑ the financial development ↑
- Sovereign debt crisis: 主权债务(sovereign debt)是指一国以自己的主权为担保向外，不管是向国际货币基金组织还是向世界银行，还是向其他国家借来的债务

Abstract

Work

propose a model of sovereign debt

countries vary in their level of financial development: the extent to which they can issue debt denominated in domestic currency in international capital markets

Conclusion

low levels of financial development —generate→ the "debt intolerance" phenomenon

reduces overall debt capacity
increases credit spreads
limits the country's ability to smooth consumption

⇉

plagues emerging markets

➢ continuous-time---the country's infinitely lived representative agent receives a perpetual, stochastic output stream and can issue both domestic- and foreign-currency debt

Motivation

An intriguing fact about sovereign debt markets

emerging economies → pay high credit spreads on their sovereign debt

despite generally having much lower debt-output ratios than developed countries

How to generate ↑ "**debt intolerance**" called by Reinhart, Rogoff, and Savastano (2003)

Answer ↓

Propose a model, by "financial development" to show that low levels of financial development generate debt intolerance

intuition ↕

Countries with less ability to issue domestic currency debt endure more volatile consumption

↓

more likely to default

↓

lenders charge them a higher credit spread to cover the expected default losses

↓

Low levels of financial development →reduce debt capacity → increase credit spreads + limit the ability to smooth consumption

Why consider the Rare disasters?

One reason---This framework has proved useful in modeling many asset-pricing and macroeconomic phenomena. Examples include the equity premium (Rietz (1988); Barro (2006); Barro and Jin (2011), and Gabaix (2012)), business cycles (Gourio (2012)), the predictability of excess stock returns(Wachter (2013)), investment, interest rates, and equity returns (Pindyck and Wang (2013)), and the returns to the carry trade (Burnside et al. (2011) and Farhi and Gabaix (2016))

Second reason and important--- permanent shocks are the primary source of fluctuations in emerging markets(Aguiar and Gopinath,2007)

In model, assume that there are sporadic downward jumps in output, output follows the jump-diffusion process estimated by Barro and Jin (2011) in which the size distribution of jumps is governed by a power law (power law是一种分布形式，类似于正太分布或指数分布等)

The relationship of two chains

Rare disasters and Low levels of financial development-increase credit spreads

have less ability to manage disaster risk

how much better would a country be if it could hedge rare-disaster risk with a full set of state-contingent hedging contracts?

Specifically, e.g., high level of financial deve

domestic currencies generally depreciate in di abaix,2016)

the dollar value of domestic-currency deb alls in these periods

This property makes domestic-currency debt a natural partial hedge against rare disasters

Countries (borrow more in domestic currency) have greater ability to manage disaster risk

As a result

they have higher debt capacity

pay lower spreads on foreign-currency debt

have less "debt intolerance"

compare two economies

The first has a high level of financial development and uses domestic-currency debt to hedge its rare disaster risk

The second : "full-spanning" economy that uses a full set of state-contingent hedging contracts to hedge its rare-disaster risk

Result:

- the more limited is a country's ability to issue debt in domestic currency → the lower is its overall debt capacity + the more severe is its debt intolerance
- full-spanning economy has higher welfare than the economy that hedges rare-disaster risk by issuing debt denominated in domestic currency

Common Ownership Does Not Have Anticompetitive Effects in the Airline Industry

Common Ownership :

Institutions often own equity in multiple firms that compete in the same product market

共同机构投资者：在同行业两家及以上公司中均属前十大股东之一的机构投资者

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反竞争行为：指妨碍、扭曲或限制市场竞争环境的行为

反竞争行为的形式包括合并、横向协议、纵向协议。一些大型企业为获取更大利润，利用市场权势，通过操纵价格、限制生产和供应、串通投标、分割市场等手段，通过“独家售货”、“设最低零售价”等，妨碍较小规模或新加入市场者的生存。反竞争行为会削弱市场的效率及公平性，令消费者缺乏选择，无法取得合理的服务质量。

Abstract

Background

Institutions often own equity in multiple firms that compete in the same product market

Prior research has shown that these institutional "common owners" induce anticompetitive pricing behavior in the airline industry

Work

This paper reevaluates this evidence

Finding

- positive correlation between common ownership and airline ticket prices stems from the market share component of the common ownership measure, and not the ownership and control components
- further show that the results are sensitive to measures of investor control and to assumptions about equity holders' ownership and control during bankruptcy

Motivation

The role of institutional investors in financial markets has increased dramatically over the past few decades, with the institutional share of publicly traded equity rising from 33% in 1980 to 61% in 2018

This trend

Has attracted significant interest from researchers, who have focused on the economic benefits and costs of large institutions managing funds on behalf of investors

Institutional managers → provide benefits → Individual investor

- increased exposure to asset classes not otherwise available to small investors and
- economies of scale that allow managers to provide low-cost portfolio diversification

institutions often own significant equity in multiple firms, including those that compete in the same product market

many product market rivals are there[illegible] the same "common" institutional investor

common owners induce or even mandate [illegible]ng behavior among product market rivals in their portfolios

Doesn't reflect causal relationship → contribution

e.g., Azar et al.(2018, **AST**) find evidence in the airline industry of a causal relationship between the concentration of common ownership in a market and average ticket prices in the market

This finding has led legal scholars and policymakers to pressure antitrust authorities to investigate the extent to which institutional ownership is associated with anticompetitive behavior →this paper's work

Research Process

Revisiting the AST Analysis

↓

Sources of Identification

↓

Mapping Investor Control

↓

Further Evidence of Fragility

↓

Other Data Issues

AST extrapolate from the theoretical construct of O'Brien and Salop (2000) for cross ownership and apply HHI to an empirical setting for common ownership

$$HHI\Delta_{rt} = \sum_{j}\sum_{k\neq j}\underbrace{\left(\frac{\sum_i \gamma_{ijt}\cdot\beta_{ikt}}{\sum_i \gamma_{ijt}\cdot\beta_{ijt}}\right)}_{\text{Ownership \& Control}}\underbrace{s_{rjt}\cdot s_{rkt}}_{\text{Market Shares}}, \qquad (1)$$

where γ_{ij} represents owner i's control over carrier j (measured as the number of shares that owner i votes in carrier j's annual shareholders' meeting), and β_{ij} represents owner i's cash-flow rights in carrier j (measured as the number of shares that i owns in carrier j). Both γ_{ij} and β_{ij} are expressed as a fraction of total shares outstanding.[5,6] The numerator of the expression captures the

$$\log(p_{rjt}) = \alpha\cdot HHI\Delta_{rt} + \eta\cdot HHI_{rt} + \theta\cdot X_{rjt} + \alpha_t + \nu_{rj} + \varepsilon_{rjt}, \qquad (2)$$

where p_{rjt} is the average ticket price for airline j in market r and year-quarter t, HHI_{rt} is industry concentration in market r at time t, and $HHI\Delta_{rt}$ is the additional effect arising from common ownership. Standard errors are double-

The coefficient estimate on $HHI\Delta$ is statistically significant and economically large in magnitude → explore the nature of this positive relationship

Research Process

Revisiting the AST Analysis

↓

Sources of Identification

↓

Mapping Investor Control

↓

Further Evidence of Fragility

↓

Other Data Issues

$$\log(p_{rjt}) = \alpha \cdot \overbrace{\sum_j \sum_{k \neq j} \underbrace{\left(\frac{\sum_i \gamma_{ijt} \cdot \beta_{ikt}}{\sum_i \gamma_{ijt} \cdot \beta_{ijt}} \right)}_{\text{Ownership \& Control}} \underbrace{s_{rjt} \cdot s_{rkt}}_{\text{Market Shares}}}^{HHI\Delta} + \eta \cdot \overbrace{\sum_j \underbrace{s_{rjt}^2}_{\text{Market Shares}}}^{HHI}$$

which drive

$$+ \theta \cdot X_{rjt} + \alpha_t + \nu_{rj} + \varepsilon_{rjt}. \qquad (4)$$

Equation (4) shows that the AST specification is a regression of average prices on two functions of market shares, namely, the traditional *HHI* and *HHI*Δ. Focusing on *HHI*Δ, we note that it is a nonlinear function of both market shares and ownership and control. Therefore, the time-series variation in *HHI*Δ has two sources: first, the time-series variation in investor i's ownership and control of the airlines serving a market and second, within a market, the time-series variation in each airline's market share. To disentangle these two sources of variation, we design a placebo test that involves constructing two new versions of *HHI*Δ. First, we construct $HHI\Delta^{Placebo\ Own}_{True\ MS}$, a measure that eliminates time-series variation in *HHI*Δ that originates from variation in ownership and control while retaining time-series and cross-sectional variation stemming from market shares. Next, we reverse this strategy and construct $HHI\Delta^{Placebo\ MS}_{True\ Own}$, a measure that eliminates time-series variation in *HHI*Δ originating from variation in market shares while retaining time-series and cross-sectional variation in *HHI*Δ that arises from ownership and control. The placebo test involves reestimating equations (2) and (3) using these alternative measures of *HHI*Δ. If the common ownership

Research Process

Revisiting the AST Analysis

↓

Sources of Identification

↓

Mapping Investor Control

↓

Further Evidence of Fragility

↓

Other Data Issues

Below, we examine how shareholders exert control over firm management and discuss different ways to capture control in constructing *HHI*Δ. We show that measuring control with voting designations as AST do yields the results on anticompetitive effects of common ownership while using a measure that captures a shareholder's threat of selling shares does not.

In this section, we analyze the robustness of the AST results to a data measurement issue and an econometric concern. The measurement issue involves the treatment of missing equity ownership and control data for bankrupt airlines. The econometric concern focuses on the inclusion of regression weights in all pricing regressions.

In this section, we briefly address two issues concerning data construction that played more prominent roles in earlier versions of this paper. First, we discuss how AST aggregate ownership and control across funds within a fund family and the effect of doing so on the results. Second, we discuss the sample filters that AST apply to clean the raw airline data and how more conventional sample restrictions impact the results.

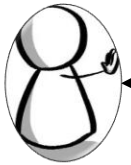
Rising Intangible Capital, Shrinking Debt Capacity, and the U.S. Corporate Savings Glut

Abstract

Question

Explores the connection

rising intangible capital



生产性资产是能产生现金流的资产，比如现金，公司股权，房地产。而非生产性资产不产生现金流，靠交易变现：比如钻石黄金珠宝红酒

How to solve this question

develop a dynamic model

- ✓ two productive assets: tangible and intangible capital
- ✓ tangible capital can serve as collateral

highlight the following points (finding)

- ☐ a shift toward intangible capital shrinks firms' debt capacity and leads them to hold more cash
- ☐ the effect accounts for three-quarters of the observed trend in average cash ratios
- ☐ it also accounts for the upward trend of cash ratios in the cross-section of small and large firms and in the aggregate

Motivation

Public corporates in the U.S. have undergone fundamental changes over the last decades

On the financial side

they have steadily increased cash holdings on their balance sheets

⇩

an issue that has attracted wide attention in the popular press: commentators expressing the concern that the "corporate saving glut" might hamper growth of the U.S. economy and even suggesting that corporate savings be taxed

On the real side

their production technology increasingly relies on intangibles

⇩

assets such as knowledge, brand, reputation, organizational, and information technology capital becoming in many respects defining features of the modern industrial corporation

these important trends have been studied mostly in isolation, and hence, the extent to which they may be connected remains relatively unexplored → this paper's work and contribution

Model

Build on Q-theoretic models of internal financing (e.g., Bolton, Chen, and Wang, 2011)

develop a dynamic model of firms' capital structure, cash management, and real investment decisions (or called a dynamic model of corporate cash management)→ reflect the mechanism

optimal financing and liquidity decisions

decisions to invest in tangible and intangible capital

A. Technology

The firm combines two types of capital to produce output: tangible capital (K_T) and intangible capital (K_N). In particular, the operating income of the firm is given by

$$\Pi(Z, K_T, K_N) = Z^{1-\gamma}\Phi(K_T, K_N)^{\gamma} - ZF^O. \tag{1}$$

where Z is an idiosyncratic productivity shock that follows a geometric random walk,

$$\log Z' = \log Z + \log \eta', \ \log \eta \sim N(-0.5\sigma_Z^2, \sigma_Z^2),$$

γ is the curvature of the profit function, which reflects either the degree of decreasing returns to scale (DRS) or the market power of the firm,[11] $\Phi(K_T, K_N)$ is a capital aggregator that combines the services of the two types of capital, and ZF^O is the fixed cost of operation, which, to keep the firm's maximization problem stationary, is assumed to be proportional to the current technology level. The capital aggregator takes a general constant elasticity of substitution (CES) functional form

$$\Phi(K_T, K_N) = \left[\theta\left(\frac{K_T}{\theta}\right)^{-\rho} + (1-\theta)\left(\frac{K_N}{1-\theta}\right)^{-\rho}\right]^{-1/\rho}, \tag{2}$$

where the elasticity of substitution is given by $1/(1+\rho)$.

To assess the link between the illiquidity of capital assets and corporate liquidity demand, we follow Abel and Eberly (1994) and assume that the adjustment of both types of capital is costly and involves fixed costs (or so-called nonconvex adjustment costs), F_i^K per unit of capital stock for $i = T, N$. We can then express the total adjustment costs of the capital stock as

$$G(K_T', K_N', K_T, K_N) = \sum_{i=T,N} G_i(K_i', K_i). \tag{3}$$

$$G_i(K_i', K_i) = [K_i' - (1-\delta_i)K_i] + F_i^K K_i, \ \text{for } i = T, N$$

B. Financing Frictions

Firms have access to three sources of financing: internal funds, debt, and outside equity

B.1. Debt Market Friction

- B outstanding debt
- B' new issuance
- use B to denote the firm's liquid asset position, with $B < 0$ denoting the firm's cash holdings
- Assume: only tangible capital assets constitute eligible collateral (following but differ from Kiyotaki and Moore, 1997--- the only possible form of debt contract is a risk-free debt contract collateralized by capital assets)
- Contract for risk-free debt is subject to the borrowing constraint

$$B' \leq \bar{B}(K'_T) \equiv \frac{(1-\delta_T)K'_T}{1+r(1-\tau)}, \qquad (5)$$

B.2. Equity Market Friction

- equity issuance E, is costly
- equity issuance costs take the parametric form

$$\varphi(E) \equiv \varphi_0 \sum_{i=T,N} K_i + \varphi_1 E. \qquad (6)$$

- φ_0 a fixed cost of issuing new equity
- $\sum_{i=T,N} K_i$ firm size measured by the book value of capital assets
- φ_1 linear cost, is proportional to amount issued

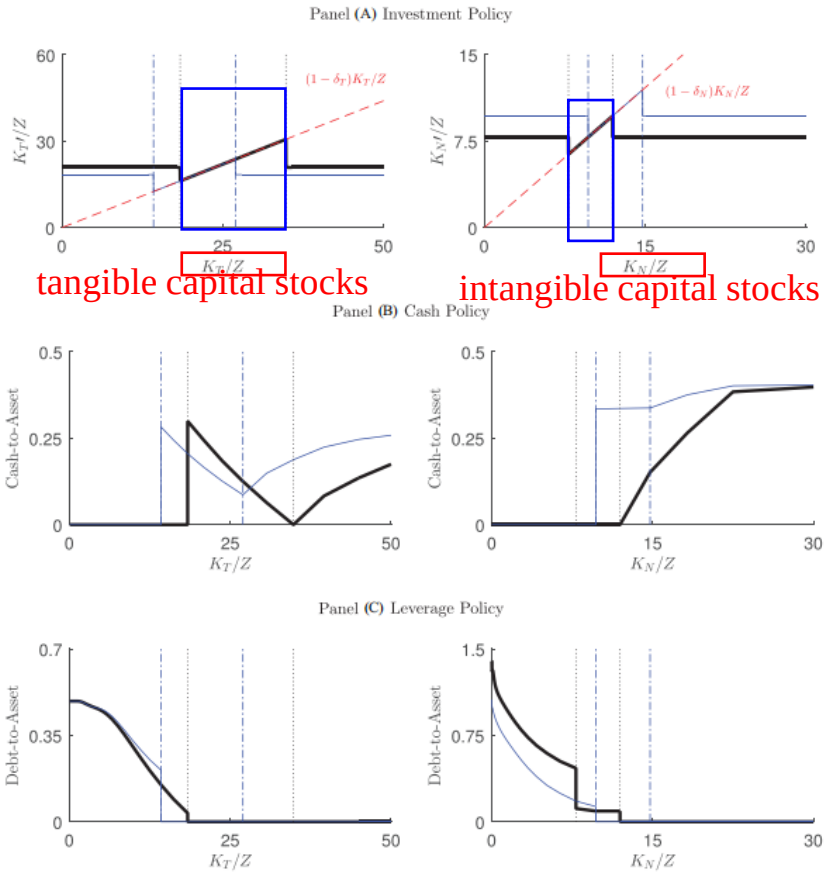
C. Value Maximization Problem

To ease presentation of the value maximization problem of the firm, we introduce three indicator variables: $\nu_T^K \in \{0, 1\}$, $\nu_N^K \in \{0, 1\}$, and $\nu^E \in \{0, 1\}$. These indicators denote the action/inaction status of the firm regarding the adjustment of tangible capital stock, the adjustment of intangible capital stock, and equity issuance, respectively. The action/inaction margin is a consequence of the presence of fixed costs of investment and equity issuance. We collect the status of these three decisions in a single element of the Cartesian product, $\nu \in \{(0, 1) \times (0, 1) \times (0, 1)\} \equiv \mathbb{V}$. For instance, $\nu = (1, 1, 1)$ indicates a policy regime in which the firm makes nonzero adjustments for both tangible and intangible capital and its financial policy involves issuance of new shares. With this additional piece of notation in hand, we can define dividend payouts as

$$D(\nu) = (1-\tau)\Pi(Z, K_T, K_N) - \sum_{i=T,N} [\nu_i^K G_i(K_i', K_i) - \tau\delta_i K_i] - [1 + r(1-\tau)]B + B' + \nu^E E. \tag{7}$$

The firm's problem can be defined in recursive form as the maximization of the value of equity,

$$W(K_T, K_N, B, Z) = \min_{\lambda,\mu} \max_{E, K_T', K_N', B', \nu} \Big\{(1+\lambda)D(\nu) - \nu^E[E + \varphi(E)] + \mu[\bar{B}(K_T') - B'] + \frac{1}{1+r}\int W(K_T', K_N', B', Z')Q(Z, dZ')\Big\}, \tag{8}$$



- Panel (A): If k_i is smaller than the lower bound of the inaction region or greater than its upper bound, the next period's capital stock jumps to its target
- Panel (B): optimal cash-holding decisions are tightly linked to the arrival of investment opportunities
- Panel (C):firms heavily borrow to finance
- investment after the investment boundary to the left of the inaction region

A Theory of Equivalent Expectation Measures for Contingent Claim Returns

SANJAY K. NAWALKHA and XIAOYANG ZHUO

Contingent Claim (或有要求权/或有索取权)

- 概念：是指未来可能发生的权力，即只有在某些特定的随机事件发生的情况下才会获得报酬的一种要求权，期权是典型的或有要求权
- 特点：无套利均衡关系体现的更为直接+不将中性风险即不确定性仅看作是消极因素，认为它能增加企业价值+所用变量可客观地确定，使结果能更客观地反映企业股权真实价值

$$C = max[0, S - X] \qquad P = max[0, X - S]$$

- 按照估价法原理来看或有要求权：股权资本价值V_E =看涨期权价值C=看跌期权价值P+标的资产价值S－执行价格现值D; 债权资本价值V_D =标的资产价值S－看涨期权价值C=执行价格现值D－看跌期权价值P

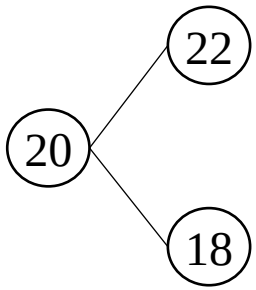
以看涨期权为例，理解期权价值

考虑一个欧式看涨期权，它赋予持有者在时刻1以敲定价格K购买一份股票的权利(但非义务)。假定$S_1(T) < K < S_1(H)$，如果时刻1的股票价格低于敲定价K，则期权的价值为0；如果时刻1的股票价格高于敲定价格K，则期权被实施，由此获利为$S_1(H) - K$。

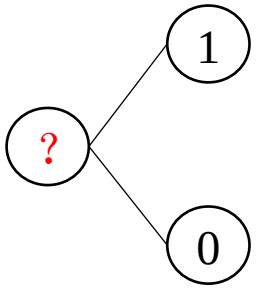
因此，期权在时刻1的价值为$(S_1 - K)^+$，其中$(\cdots)^+$表示我们取括号中的表达式和零之间的较大值 $C = max[0, S - K]$

来源：《随机分析》---毛松老师授课

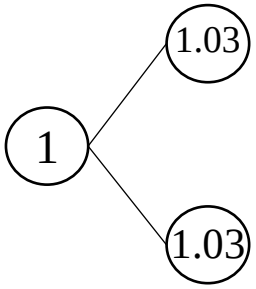
例：设某只股票的当前价格为$20，三个月后的价格可能为$22或$18。假设股票三个月内不付红利。有效期为3个月的欧式看涨期权执行价格为$21。如何对该期权进行定价？(假设无风险利率为年率12%)



股票价格树



期权价值树



无风险收益树

对该期权定价的思想：如果能够用这种股票和期权构造一个组合，使得该组合的收益率等于无风险利率(无套利假设)，可以得到构造该组合所需的成本(现值)，而组合中股票的价格是已知的，于是就能得到期权的价格。

① 构造这样的证券组合：

该组合包含Δ股股票的多头头寸和一份看涨期权的空头头寸

② 计算Δ值为多少时，构造的组合为无风险组合：

当股票的价格从$20上升到$22时，股票的价值为22Δ，此时期权的价值为$1，在这种情况下该证券组合的价值为22Δ-1；当股票价格从$20下降到$18时，股票的价值为18 Δ，期权的价值为0，此时证券组合的价值为18Δ。如果选取某个具体的Δ值，使得这两种情况下组合的最终价值相等，则该证券组合一定是无风险组合。即22Δ-1=18Δ，解得Δ=0.25。

因此，我们构造的无风险证券组合为
- 多头0.25股股票
- 空头一份看涨期权合约

如果股票价格上升到$22，组合价值为22*0.25-1=4.5；如果股票价格下跌至$18，组合价值为18*0.25=4.5。可以看到，无论股票价格怎样变化，在期权有效期结束时，我们构造的组合价值总是$4.5。

③ 确定期权价值：

在无套利定价假设条件下，无风险组合的收益率一定为无风险利率(0.12/4=0.03)

该组合的现值为$4.5e^{-0.03}=4.367$。假设期权的价格为f，该组合的现值为20*0.25- f=4.367。

e^{-rT}连续复利折现系数

解得$f=0.633$。

即在无套利假设的条件下，期权的价值一定为$0.633。

由此可见，二叉树资产定价模型对理解套利定价理论至关重要

Abstract

Work

This paper introduces a dynamic change of measure approach for computing analytical solutions of expected future prices (and therefore, expected returns) of contingent claims over a finite horizon

The new approach constructs hybrid probability measures called equivalent expectation measures (EEMs)→provide the physical expectation of the claim's future price before the horizon date, and serve as pricing measures on or after the horizon date.

Implication

The EEM theory can be used for empirical investigations of both the cross-section and the term structure of returns of contingent claims, such as Treasury bonds, corporate bonds, and financial derivatives

Motivation + Framework

The change of measure concept lies at the heart of asset pricing

Almost half a century ago, the no-arbitrage derivations of the call option price by Black and Scholes (1973) and Merton (1973b) led to the discovery of the standard change of measure approach, which assigns risk-neutral or equivalent martingale probabilities to all future events-----static approach

Extending this static approach, which changes the pricing measure only at the current time, we develop a dynamic change of measure approach that changes the pricing measure at any given future horizon date *H* between the current time *t* and the claim's expiration date *T*---theoretical innovation

B-S pricing equation

$$C = S \bullet \mathrm{N}(\mathrm{d}_1) - Le^{-rT}\mathrm{N}(\mathrm{d}_2)$$

$$\mathrm{d}_1 = \frac{\ln\frac{S}{L} + (r + 0.5\sigma^2)T}{\sigma\sqrt{T}}$$

$$\mathrm{d}_2 = \frac{\ln\frac{S}{L} + (r - 0.5\sigma^2)T}{\sigma\sqrt{T}} = \mathrm{d}_1 - \sigma\sqrt{T}$$

*C*期权初始合理价格

*L*期权交割价格

*S*所交易金融资产现价

*T*期权有效期

*r*无风险利率

σ^2方差

N()正态分布变量的累积概率分布函数($\frac{1}{\sqrt{2\pi}}\int_{-\infty}^{d_n} e^{-\frac{x^2}{2}}\,\mathrm{dx}$)

EEM answer the following kinds of questions

- ✓ What is the expected return of a 10-year Treasury bond over the next two months under the *A*1(3) affine model of Dai and Singleton (2000)?
- ✓ What is the expected return of a five-year, A-rated corporate bond over the next quarter under the stationary-leverage ratio model of Collin-Dufresne and Goldstein (2001)?
- ✓ What is the expected return of a three-month call option on a stock over the next month under the SVJ model of Pan (2002) or under the CGMY model of Carr et al. (2002)?
- ✓ What is the expected return of a five-year interest rate cap over the next six months, under the QTSM3 interest rate model of Ahn, Dittmar, and Gallant (2002)?

A simple discrete-time example---European call option

hybrid equivalent probability measure $\mathbb{R}$ $=$

- the physical measure $\mathbb{P}$ prior to time $\underline{H}$
- a specific future horizon H between times t and T
- the risk-neutral measure $\mathbb{Q}$ on or after time $\underline{H}$

By construction, the $\mathbb{R}$ measure provides the physical expectation of the claim's time-H future price until time H and serves as the pricing (or the equivalent martingale) measure on or after time H

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can construct a binomial tree to obtain the expected future price for the European call option C, which matures at time T with strike price K, written on an underlying asset price process S.

Given $C_T = \max(S_T - K, 0) = (S_T - K)^+$ as the terminal payoff from the call option and using a constant interest rate r, the future price of the call option at time H can be computed under the $\mathbb{Q}$ measure as follows:

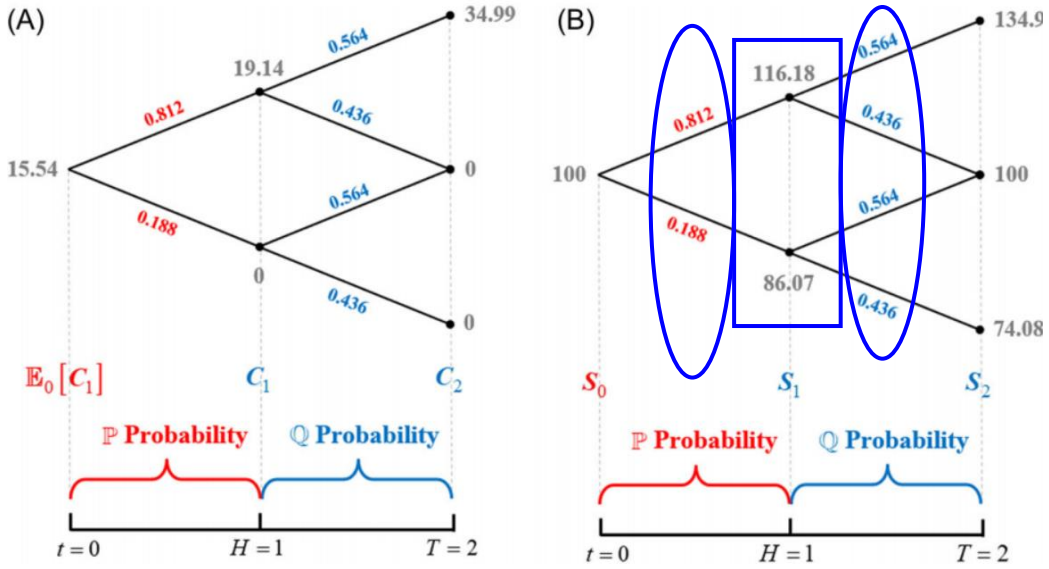
$$C_H = \mathbb{E}_H^{\mathbb{Q}}\left[e^{-r(T-H)}(S_T - K)^+\right].$$

Taking the physical expectation of the future call price at the current time $t \leq H$ gives[2]

$$\mathbb{E}_t[C_H] = \mathbb{E}_t^{\mathbb{P}}\left[\mathbb{E}_H^{\mathbb{Q}}\left[e^{-r(T-H)}(S_T - K)^+\right]\right]. \quad (1)$$

Using this construction, the law of iterated expectations immediately gives

$$\mathbb{E}_t[C_H] = \mathbb{E}_t^{\mathbb{R}}\left[e^{-r(T-H)}(S_T - K)^+\right]. \quad (2)$$



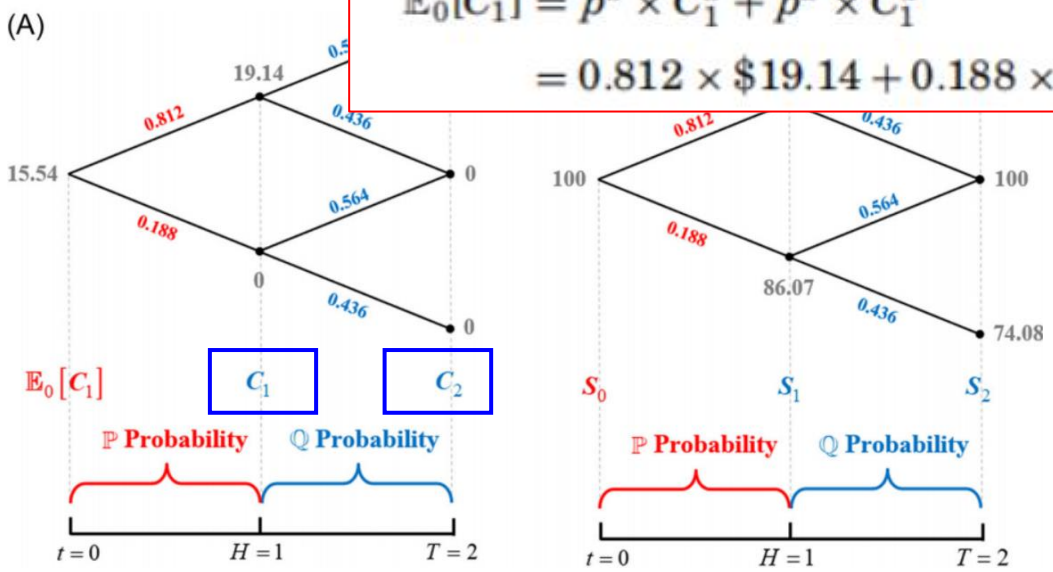
- stock's annualized expected return μ is 0.1, the annualized risk-free rate r is 0.03, the annualized stock return volatility σ is 0.15, and the discrete interval $\Delta t = 1$
- Cox, Ross and Rubinstein(1979): the stock price moves either up by the multiplicative factor $u = e^{\sigma\sqrt{\Delta t}} = 1.1618$; or down by the multiplicative factor $d = e^{-\sigma\sqrt{\Delta t}} = 0.8607$

$$p^u = \frac{e^{\mu\Delta t} - d}{u - d} = \frac{e^{0.1\times 1} - 0.8607}{1.1618 - 0.8607} = 0.812, \quad p^d = 1 - p^u = 0.188.$$

$$q^u = \frac{e^{r\Delta t} - d}{u - d} = \frac{e^{0.03\times 1} - 0.8607}{1.1618 - 0.8607} = 0.564, \quad q^d = 1 - q^u = 0.436.$$

Now consider the computation of the expected future price $\mathbb{E}_0[C_1]$ of a two-year European call option written on this stock with a strike price $K = \$100$.

$$\mathbb{E}_0[C_1] = p^u \times C_1^u + p^d \times C_1^d$$
$$= 0.812 \times \$19.14 + 0.188 \times \$0 = \$15.54.$$



The option prices C_2 at the terminal nodes of the tree are calculated by the payoff function $\max(S_2 - K, 0)$. The option prices C_1 at time $H = 1$ year are computed using risk-neutral discounting (see Cox, Ross, and Rubinstein (1979)). Specifically, the option value C_1 at the up node is

$$C_1^u = \mathrm{e}^{-r\Delta t}\left(q^u \times \$34.99 + q^d \times \$0\right)$$
$$= \mathrm{e}^{-0.03\times 1}(0.564 \times \$34.99 + 0.436 \times \$0) = \$19.14.$$

The Golden Mean: The Risk-Mitigating Effect of Combining Tournament Rewards with High-Powered Incentives

Abstract

Background

rewards received by financial managers → relative performance (e.g., fund inflows based on fund rankings, promotions based on peer comparisons); absolute performance (e.g., bonus payments for meeting accounting targets, hedge-fund incentive fees) → engender risk-taking

Work

- This paper---show that these two sources of risk-taking, relative and absolute performance rewards, mitigate the risk-taking incentives produced by the other.
- This mutual incentive-reduction effect generates a number of novel predictions about the relationship of managerial risk-taking with the structure of relative and absolute performance rewards

Motivation

Ruin risk-taking (RRT)

- Definition: involves choosing portfolios or real investments that entail a significant probability of ruin but promise high upside returns
- Evidence: As evidenced by the collapse and subsequent bailout of Long-Term Capital Management (Lo, 2001)), the failure of Amaranth and its ripple effects on the energy markets (King and Maier, 2009), and the billions of dollars of losses triggered by the

a hypothetical hedge fund, CDP--- talentless managers cannot generate abnormal expected returns, but they can use a simple trading strategy to generate superior performance, conditional on remaining solvent: sell puts on the S&P 500 index having a strike price that is 7% out of the money. Over the period that Lo (2001) considers (1992 to 1999), S&P returns … always exceeded −9%. **CDP's Sharpe ratio of approximately 2.0** was quite impressive……However, if a massive drop in the S&P 500 index had occurred, CDP would have been ruined. In nonruin states of the world, CDP's risk-return profile was consistent with talented asset management. CDP "bought" this profile by accepting ruin risk.

What sort of incentive structures would motivate a hedge fund to adopt strategies like CDP's?

1 One motivation might be 20% incentive fees

Provisions in hedge-fund manager contracts frequently grant managers 20% of returns in excess of a "high-water mark." High-water marks are typically fixed, or determined by

高水位线条款(high water marks, 以下简称HWM)---每年支付一次业绩报酬为例

若投资者投资100万元，在第一年末得到10%的收益，资产变成110万元，如果业绩报酬的提取比例是20%，那么基金经理获得的业绩报酬就是2万元。第二年投资亏损，资产变成105万元，则不能提取业绩报酬。到了第三年，资产增值到120万元，由于HWM条款的规定，投资者不用为第三年末相比第二年末的5万元资产增值支付业绩报酬，只需从超过历史资产价值高点的10万元(即110万元)中提取业绩报酬，相应业绩报酬为3万元，投资者不需要为资产第二次达到110万元支付业绩报酬。即，如果对冲基金在某一期发生了亏损，由于HWM条款规定了不得重复提取业绩报酬，下一期的收益必须在弥补了上一期的亏损，并且使得基金净值达到历史最高水平之后，基金经理才可以从超过历史最高水平的资产增值中提取业绩报酬

2 Another possibility relates to 2% management fees

Management fees, the single most important component of hedge fund manager compensation (Lim et al., 2016), relative to performance.

Prior literatures

• The literature shows that executives receive significant absolute performance rewards in the form of bonuses, stock options, and restricted stock grants (Murphy, 1999).

• The literature also shows that a significant proportion of executive remuneration is based on relative performance. For instance, executives compete for internal promotions based on relative performance (Kini & Williams, 2012).

• Prior literature also shows that the mix between relative and absolute performance rewards has not been stable over time.

effect of managerial reward structures on RRT

• One strand of this research shows that when managers only receive absolute performance rewards, high-powered compensation Engenders RRT (e.g., Rose-Ackerman, 1991;Palomino and Prat, 2003).

• Another strand shows that when managers only receive relative performance rewards based on peer-group comparisons, ability differences between members of the peer group lead to risk-taking by weaker competitors (e.g., Hillman and Samet, 1987; Hillman and Riley, 1989; Hvide, 2002).

Thinking for prior literatures

However, because managers receive mixtures of relative and absolute performance rewards, models that do not encompass both relative and absolute performance rewards do not provide a theoretical framework for addressing a number of important questions.

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For example, when managers receive both relative and absolute performance rewards, what is the predicted effect on risk taking of shocks that make achieving bonus targets or high-water marks more challenging, and what is the effect on risk-taking of introducing relative performance compensation schemes like RPE---relative performance evaluation?

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answering such questions --- construct a model that considers managerial risk-taking when managers receive a mixture of relative and absolute performance rewards (work and contribution)

Conclusion

- Work: analyze the interaction between rank-based rewards and rewards conditioned on achieving an absolute level of performance
- Finding:

① Both rank and absolute performance rewards encourage risk-taking.

② introducing rank rewards into absolute performance competitions, or introducing absolute performance rewards into rank competitions, always reduces managerial RRT and that, under quite general conditions, reduces the overall riskiness of managerial performance.

③When managers are motivated by rank dominance as well as absolute performance rewards, the relationships between rewards and risk-taking are quite different from, and sometimes directly opposed to, the relationships generated by either pure rank or pure absolute performance rewards.

CEO Political Leanings and Store-Level Economic Activity during the COVID-19 Crisis: Effects on Shareholder Value and Public Health

Abstract

Intuition

during the COVID-19 pandemic

Maintaining economic output → benefits for firm shareholders

Maintaining economic output → comes at a potential cost to public health

Work

Using store-level data, we examine how a CEO's political leaning impacts this trade-off

Finding

- firms with a Republican-leaning CEO experience a relative increase in store visits compared to firms with a Democratic-leaning CEO
- The increase in store visits is associated with higher sales and positive abnormal stock returns
- higher COVID-19 transmission rates and more employee safety complaints in communities where establishments with higher store traffic are managed by a Republican-leaning CEO.

Motivation

national, state, and local policies

The costs and benefits are the subject of ongoing debate in the United States

intended to

inhibit the transmission of COVID-19 + protect public health

⇩ heart

benefits of opening up an economy

potential risks to public health

trade-off

In particular, social distancing and other policies that limit the spread of COVID-19 (e.g., wearing masks, travel restrictions, and limiting number of customers in a store) can also reduce economic activity

Evidence from academic studies and surveys alike indicates---political and cultural beliefs are associated with individual attitudes toward both COVID-19 and policies intended to limit virus transmission.

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are likely to extend to **CEOs** and other **firm executives**

Restrictive policies that aim to protect the health of store employees and customers impose a burden on firm and its customers, reducing store visits---democrats

VS

lenient policies that aim to boost store traffic can provide a channel for virus transmission--- republicans

NOTE: differences in ideology do not mean that Republicans solely prioritize the economic benefits of opening the economy over the potential public health risks, or that Democrats are unaware that restricting commerce to provide public health benefits can have detrimental effects on the economy.

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Political leanings, however, are likely to tip the scale in how political ideology affects prioritizing the potential trade-offs

Empirical strategy

- SafeGraph database
- weekly frequency over the period March 2 to May 17, 2020
- pre-COVID benchmark: the percentage change in weekly visits to an establishment relative to the same week a year ago

$$y_{i,t} = \alpha + \beta_1 CEO\_REP_i + X_i + \gamma_{ind,county,week} + \varepsilon_{i,t}, \quad (1)$$

where $y_{i,t}$ is the weekly percentage change in visits to establishment i during week t ($VISITS$), X_i is a vector of lagged firm-level control variables, and $\gamma_{ind,county,week}$ captures industry-county-week fixed effects. By comparing firm establishments within the same industry, county, and calendar week, the triple fixed effects control for unobserved factors such as differences in county-level policies or virus transmission at a certain point in time.

Second, we conduct DiD analysis between pre- and post-COVID periods that explicitly accounts for preexisting trends prior to COVID. This analysis aims to rule out increases in store traffic following COVID-19 onset that are due to preexisting trends in store visits based on CEO ideology. Specifically, we estimate

$$y_{i,t} = \alpha + \beta_1 CEO\_REP_i + I\left(week_t\right) + \sum_{t=1}^{T} \beta_{2,t} CEO\_REP_i * I(week_t) + X_i + \gamma_{ind,county} + \varepsilon_{i,t}, \quad (2)$$

where $y_{i,t}$ is the weekly percentage change in visits to establishment i during week t ($VISITS$), $I(week_t)$ is a vector of dummy variables equal to 1 for a given week t, X_i is a vector of lagged firm-level control variables, and $\gamma_{ind,county}$ captures industry-county fixed effects.

Thank you

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1.The Anatomy of the Transmission of Macroprudential Policies

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8.A Theory of Equivalent Expectation Measures for Contingent Claim Returns

9.The Golden Mean: The Risk-Mitigating Effect of Combining Tournament Rewards with High-Powered Incentives

10.CEO Political Leanings and Store-Level Economic Activity during the COVID-19 Crisis: Effects on Shareholder Value and Public Health