

SHARE PLEDGING IN CHINA: FUNDING LISTED FIRMS OR FUNDING ENTREPRENEURSHIP?

Zhiguo He, Stanford GSB and NBER

Bibo Liu, Tsinghua PBCSF

Feifei Zhu, CUFE School of Finance

MOTIVATION

❖ **FINANCIAL SYSTEM AND ECONOMIC GROWTH**

- ❖ Evaluate prospective entrepreneurs, finance productive projects, diversify risks, and encourage innovation (King and Levine, 1993; Rajan and Zingales, 1998)

❖ **SHARE PLEDGING**

- ❖ Shareholders obtain loans with their shares as collateral: the intersection of the banking system and the stock market
- ❖ Prevalent across the globe, huge in China
 - ❖ Notable deals in the US market: Elon Musk's acquisition of Twitter in 2022
 - ❖ In 2017, more than 95% of the A-share listed firms had at least one pledging shareholder

❖ **GROWTH OF ENTREPRENEURSHIP**

- ❖ An upsurge in recent decades, driving economic growth (Allen et al., 2005)
- ❖ Unlikely to be financed by the banking system; share pledging could be an important financing source

❖ **SHARE PLEDGING AND ENTREPRENEURSHIP?**

- ❖ How do major shareholders use the share pledging funds?
 - ❖ Common perception: pledging funds circle back to the listed firms
- ❖ Do they use the share pledging funds in entrepreneurial activities?

MAIN RESULTS

❖ PLEDGING FUND USAGES

- ❖ The majority is used outside listed firms
 - ❖ Public disclosure: funds from 92.2% of transactions
 - ❖ Survey: Firms' largest shareholders
 - ❖ Total 67.3% outside listed firms
 - ❖ Repay personal debts (25.3%), personal consumption (13.6%), financial investments (5.2%); **create new firms (33%)**

❖ PLEDGING AND ENTREPRENEURSHIP

- ❖ Baseline results
 - ❖ #add-on firms held by a pledging shareholder exceeds that of a non-pledging shareholder by 89% of national average #add-on per person
- ❖ DiD results: the launch of the exchange market in 2013
 - ❖ Help private shareholders more than state-owned shareholders, suggesting a causal relation
- ❖ Industry of add-on firms
 - ❖ Shareholders tend to take advantage of the industrial policies and invest in industries encouraged by the government
 - ❖ A momentum-like strategy that invests in past winners
- ❖ Potential risks
 - ❖ Margin call risk
 - ❖ Rollover risk

LITERATURE REVIEW

❖ ENTREPRENEURSHIP IN CHINA

- ❖ The rise of privately owned enterprises in China (Song et al., 2011; Bai et al., 2021; Brandt et al., 2022)
- ❖ Financial constraints impede entrepreneurship (Blanchflower and Oswald, 1998; Anderson and Nielsen, 2012)
- ❖ Alternative financing tools (Harding and Rosenthal, 2017; Schmalz et al. 2017)

❖ CAUSES AND CONSEQUENCES OF SHARE PLEDGING

- ❖ Causes: reduce financial constraints of non-listed holdings (Guo et al., 2020); diversify risks (Larcker and Tayan, 2010)
- ❖ Consequences: firm value (Li et al., 2020; Dou et al. 2020; Pan and Qian, 2024); other decisions (e.g., share repurchases (Chan et al., 2019); earnings management (DeJong et al., 2020); innovation (Pang and Wang, 2020); M&A (Zhu et al., 2021)

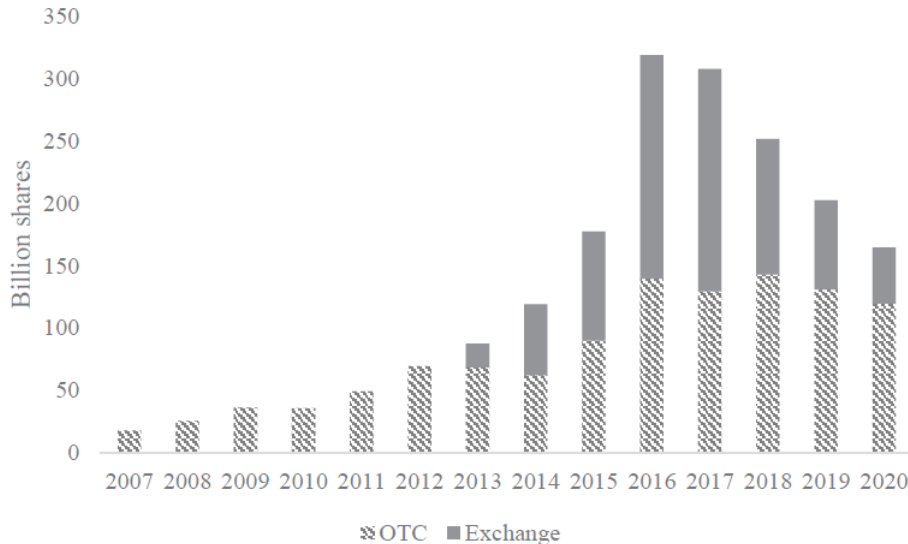
❖ CHINA'S DEVELOPING FINANCIAL MARKETS

- ❖ Stock market (Hu and Wang, 2021; Carpenter et al., 2021)
- ❖ Bond market (Chen et al., 2020; Amstad and He, 2021)

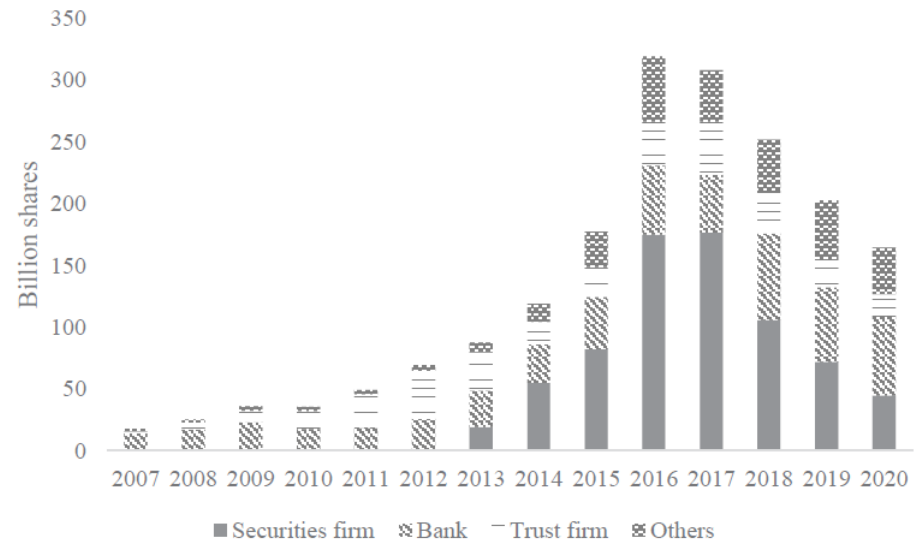
INSTITUTIONAL BACKGROUND

❖ THE CHINESE SHARE PLEDGING MARKET

- ❖ Established by the 1995 Guarantee Law
- ❖ Two markets: **OTC** (1997), **Exchange** (2013)
- ❖ Peak in 2017: 95% firms, 6.15 trillion (10% of market cap)
- ❖ Risks and tightening regulations since 2017



Panel A: OTC and exchange market



Panel B: Different types of lenders

Figure: Shares newly pledged in the Chinese market during 2007-2020

DATA AND SAMPLE

❖ DATA SOURCE

- ❖ Share pledging transactions: CSMAR
- ❖ Usages of pledging funds
 - ❖ Firm disclosures: CSMAR and RESSET
 - ❖ Tsinghua PBCSF - CSRC joint survey in 2019
- ❖ Entrepreneurial activities
 - ❖ SAIC firm registration data
- ❖ Others:
 - ❖ CEIC, CBRIC, Wind, AMAC

❖ SAMPLE CONSTRUCTION

- ❖ 2009 – 2018
- ❖ Major shareholders with 5% ownership or more

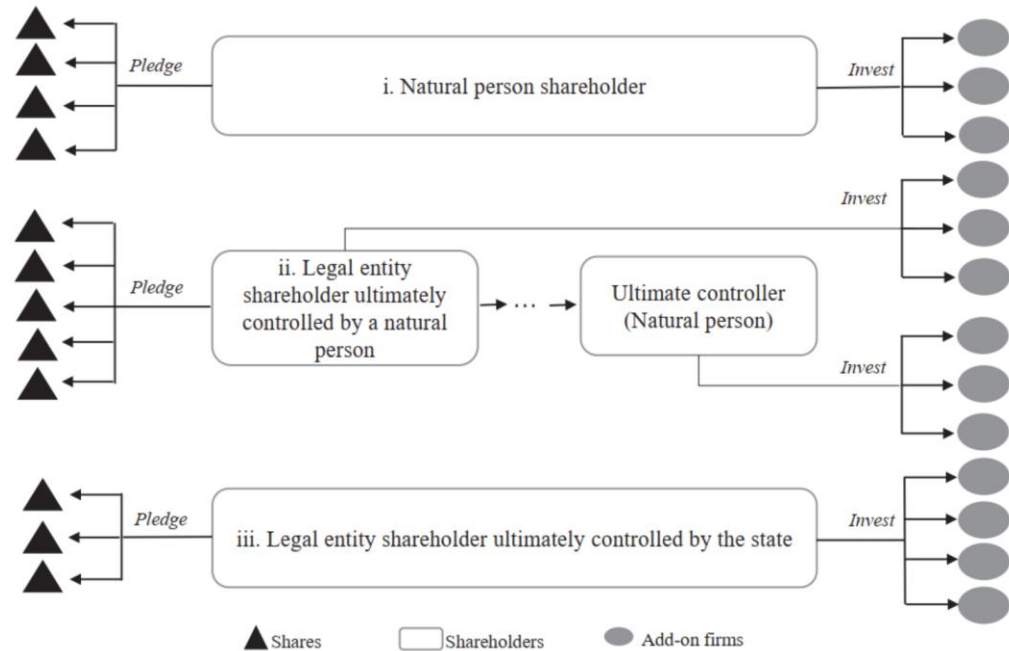


Figure: Sample construction based on ultimate ownership of shareholders of listed firms

DATA AND SAMPLE

❖ SAMPLE SUMMARY STATISTICS

	Mean	STD	P5	P25	Median	P75	P95
<i>Panel A: Share pledging transactions</i>							
Pledging dummy	0.34	0.47	0.00	0.00	0.00	1.00	1.00
Shares newly pledged out of shares held (%)	17.08	30.5	0.00	0.00	0.00	24.1	93.65
Shares newly pledged out of total shares (%)	3.97	7.97	0.00	0.00	0.00	4.43	22.37
Loans from pledging (million RMB)	140.38	351.75	0.00	0.00	0.00	95.08	816.61
Maturity (years)	1.59	0.88	0.65	1.00	1.32	2.00	3.00
Margin call (%)	17.94	29.3	0.00	0.00	0.00	27.28	94.75
<i>Panel B: Entrepreneurial activities by shareholders</i>							
No. of add-on firms	0.68	1.30	0.00	0.00	0.00	1.00	3.00
- New firms	0.55	1.09	0.00	0.00	0.00	1.00	3.00
- Existing firms	0.12	0.40	0.00	0.00	0.00	0.00	1.00
No. of add-on firms scaled by the national average	5.06	9.74	0.00	0.00	0.00	7.61	24.56
Amount of new paid-in capital (million RMB)	63.91	233.48	0.00	0.00	0.00	10.00	363.6
- Follow-on investment in existing firms	6.35	40.21	0.00	0.00	0.00	0.00	4.90
- New investment in existing firms	8.13	45.77	0.00	0.00	0.00	0.00	20.00
- Investment in new firms	49.43	205.42	0.00	0.00	0.00	3.00	227.70
Amount scaled by the national average	462.06	1698.50	0.00	0.00	0.00	71.46	2504.06
<i>Panel C: Shareholders and their listed firms</i>							
Shareholder financial wealth (billion RMB)	2.94	5.93	0.13	0.41	1.00	2.55	12.54
Shareholder financial wealth growth potential	2.11	1.31	1.04	1.31	1.68	2.4	4.65
Firm market capitalization (billion RMB)	10.57	16.78	1.26	2.65	5.09	10.7	38.51
Firm shares outstanding (million shares)	529.89	851.18	25	91	263.74	591.49	1887.73
Firm dividend dummy	0.75	0.43	0.00	1.00	1.00	1.00	1.00

USAGES OF PLEDGING FUNDS

❖ FIRM DISCLOSURE

- ❖ Combine pledging data and related-party transaction data
- ❖ 7.8% of transactions, funds were used for the listed firms: 1.8% in guarantees; 3.5% in SEO shares; and 2.7% in direct loans
- ❖ Similar results on # of firms (14.2%) and loan amount (10.1%)

Year	No. Obs/Amount	Used by listed firms				Other purposes (%)
		Subtotal (%)	Guarantee (%)	SEO (%)	Loan (%)	
<i>Panel B: No. of transactions</i>						
2007	502	76 (15.1)	49 (9.8)	18 (3.6)	13 (2.6)	426 (84.9)
2008	703	106 (15.1)	81 (11.5)	14 (2.0)	19 (2.7)	597 (84.9)
2009	877	104 (11.9)	71 (8.1)	9 (1.0)	28 (3.2)	773 (88.1)
2010	969	126 (13.0)	64 (6.6)	30 (3.1)	39 (4.0)	843 (87.0)
2011	1495	129 (8.6)	62 (4.1)	22 (1.5)	50 (3.3)	1366 (91.4)
2012	1901	172 (9.0)	84 (4.4)	53 (2.8)	42 (2.2)	1729 (91.0)
2013	2596	257 (9.9)	69 (2.7)	115 (4.4)	88 (3.4)	2339 (90.1)
2014	3951	500 (12.7)	48 (1.2)	298 (7.5)	166 (4.2)	3451 (87.3)
2015	6403	816 (12.7)	55 (0.9)	600 (9.4)	184 (2.9)	5587 (87.3)
2016	9839	915 (9.3)	119 (1.2)	572 (5.8)	263 (2.7)	8924 (90.7)
2017	12331	781 (6.3)	125 (1.0)	351 (2.8)	322 (2.6)	11550 (93.7)
2018	13646	605 (4.4)	171 (1.3)	73 (0.5)	369 (2.7)	13041 (95.6)
2019	6806	238 (3.5)	136 (2.0)	39 (0.6)	67 (1.0)	6568 (96.5)
Avg. Percent	100%	7.8%	1.8%	3.5%	2.7%	92.2%

USAGES OF PLEDGING FUNDS

❖ SURVEY EVIDENCE

- ❖ The 2019 Tsinghua PBCSF-CSRC survey: covering all A-share listed firms
- ❖ Question: Whether the largest shareholder had ever pledged her shares? If yes, the usages of funds?
- ❖ Respondent: top executives, with a response rate of 99.49%
- ❖ 33.0% firms' largest shareholders invested in existing firms other than the listed firms or in creating new firms

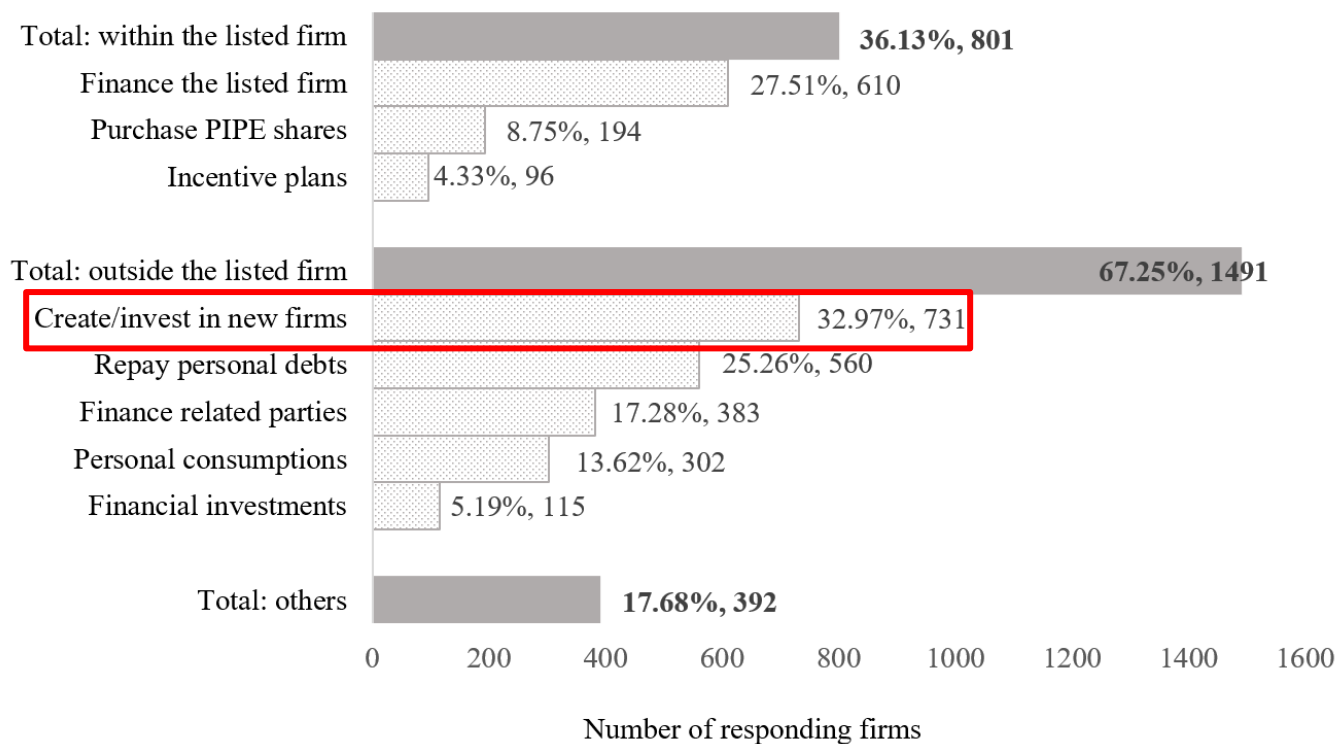


Figure: Survey results on usages of share pledging funds

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ BASELINE RESULTS

- ❖ $\#FirmAdded = \#New + \#Existing$, scaled by the national average
- ❖ #add-on firms held by a pledging shareholder exceeds that of a non-pledging shareholder by 89% of the national average in each year
- ❖ Shareholders spend most funds on creating new firms (65% national average) rather than investing in existing firms (22%)

$$Y_{it} = \alpha + \beta \cdot PledgingDummy_{it} + \gamma \cdot Controls_{it} + \delta_i + \delta_t + \varepsilon_{it}$$

	(1)	(2)	(3)
	<i>#FirmAdded</i>	<i>#New</i>	<i>#Existing</i>
<i>PledgingDummy</i>	0.885***	0.653***	0.216***
	(4.96)	(4.32)	(3.36)
Controls	Y	Y	Y
Shareholder FE	Y	Y	Y
Year FE	Y	Y	Y
N	20379	20379	20379
Adj. R^2	0.450	0.409	0.234

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ **A QUASI NATURAL EXPERIMENT**

- ❖ The launch of the exchange market in 2013
- ❖ OTC: banks as major lenders; negotiated terms; relatively costly (interest, time); difficult to sell collateral
- ❖ Exchanges: securities firms as major lenders; standardized terms; more accessible and attractive to shareholders

❖ **TREATMENT: PRIVATE SHAREHOLDERS**

- ❖ Discriminated by banks in the OTC market and financially constrained
- ❖ Securities firms in the exchange market are enthusiastic to lend
 - ❖ Decisions based on collateral rather than identities; compete for business
- ❖ Securities firms can use own and external capital

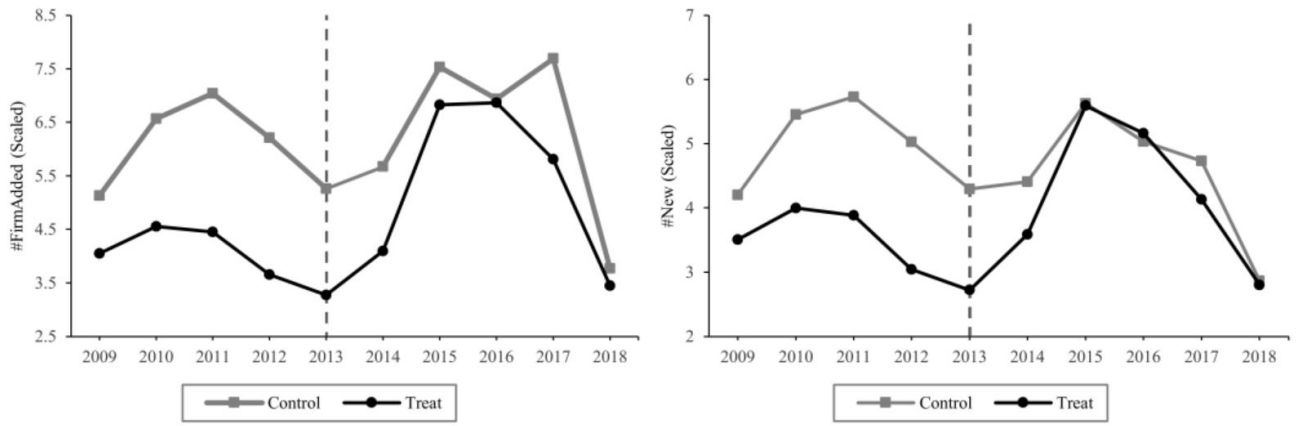
❖ **CONTROL: STATE-OWNED SHAREHOLDERS**

- ❖ Well served by the banking system
- ❖ Share pledging in the OTC market, but worrying about the risk of losing state asset

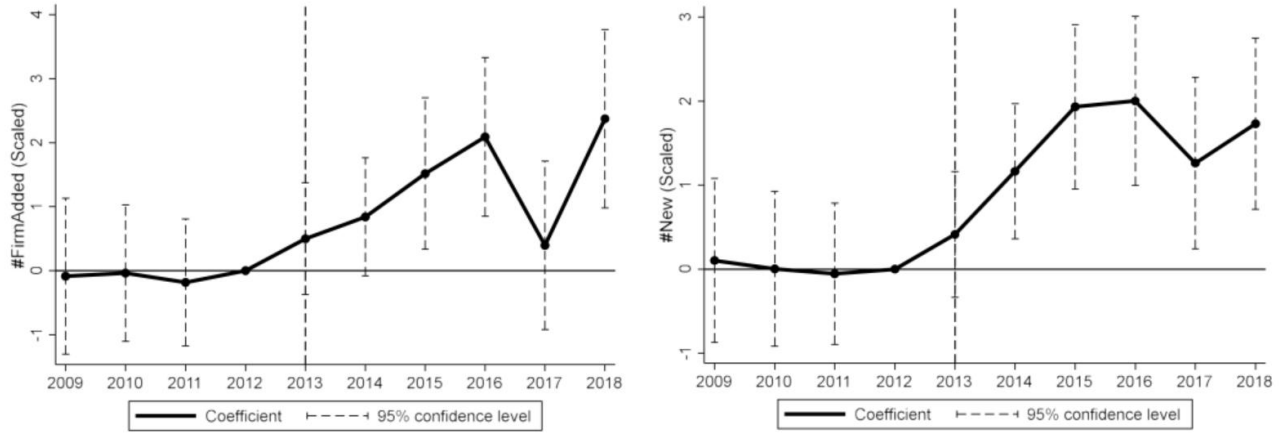
❖ **IDENTIFICATION**

- ❖ Relative to state-owned shareholders, private shareholders are more exposed to the positive supply shock
- ❖ Shares pledged by private (state-owned) shareholders grew by 390% (158%) during the three years after the launch

SHARE PLEDGING AND ENTREPRENEURSHIP



Panel A: The number of add-on firms around the 2013 reform, scaled by the national average



Panel B: Coefficient estimates on Treat*Year from dynamic regressions

Figure: Parallel trends tests

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ DID TESTS

- ❖ After 2013, the increase in *#FirmAdded* by a private shareholder exceeds that by a state-owned shareholder by 128% of national average
- ❖ The increase in *#New* by a treated private shareholder exceeds that by a state-owned shareholder by 109% of national average
- ❖ Insignificant increase in *#Existing*

$$Y_{it} = \alpha + \beta \cdot \text{Treat}_i \times \text{After}_t + \gamma \cdot \text{Controls}_{it} + \delta_i + \delta_t + \varepsilon_{it}$$

	(1)	(2)	(3)
	<i>#FirmAdded</i>	<i>#New</i>	<i>#Existing</i>
<i>Treat</i> × <i>After</i>	1.283***	1.094***	0.101
	(3.55)	(3.54)	(0.78)
Controls	Y	Y	Y
Shareholder FE	Y	Y	Y
Year FE	Y	Y	Y
N	14717	14717	14717
Adj. R^2	0.429	0.393	0.213

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ INDUSTRIES OF ADD-ON FIRMS

- ❖ Investing in risky, technology, and growth firms
 - ❖ Decompose add-on firms into three mutually exclusive categories: *#Risky*, *#HighTech*, and *#Others*
 - ❖ A relatively stronger preference toward high-tech industries, while insignificant for risky industry.
 - ❖ Further decompose *#Others* into: *#HighGwt* and *#LowGwt*
 - ❖ Shareholders use a momentum-like strategy by investing in past winners

$$Y_{ijt} = \alpha + \beta \cdot Treat_i \times After_t + \gamma \cdot Controls_{it} + \delta_i + \delta_{jt} + \varepsilon_{ijt}$$

	(1)	(2)	(3)	(4)	(5)
	<i>#Risky</i>	<i>#HighTech</i>	<i>#Other</i>	<i>#HighGwt</i>	<i>#LowGwt</i>
<i>Treat*After</i>	2.510	2.452*	1.149***	1.102***	0.116
	(1.46)	(1.81)	(3.39)	(4.02)	(0.92)
Controls	Y	Y	Y	Y	Y
Shareholder FE	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y
N	14717	14717	14717	14717	14717
Adj. R^2	0.150	0.193	0.382	0.332	0.234

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ FURTHER DISCUSSION ON IDENTIFICATION

❖ Industry and local economic shocks

❖ Industry level shocks: *Industry* × *Year* FE

❖ Local economic shocks: *Province* × *Year* FE

❖ Qualitatively unchanged results

$$Y_{ijt} = \alpha + \beta_1 \text{Treat}_i * \text{After}_t + \gamma \text{Controls}_{it} + \delta_i + \delta_{jt} + \varepsilon_{ijt}$$

	(1)	(2)	(3)	(4)
	#FirmAdded	#New	#FirmAdded	#New
	<i>Panel A: Industry*year FE</i>		<i>Panel B: Province*year FE</i>	
<i>Treat*After</i>	0.604*	0.471*	0.425***	0.302***
	(2.06)	(2.28)	(3.17)	(3.14)
Controls	Y	Y	Y	Y
Shareholder FE	Y	Y	Y	Y
Industry/Province * Year FE	Y	Y	Y	Y
N	279623	279623	456227	456227
Adj. R^2	0.071	0.069	0.051	0.043

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ FURTHER DISCUSSION ON IDENTIFICATION

❖ Alternative treatment groups

- ❖ *Treat1*: Natural person shareholders
- ❖ *Treat2*: Legal entity shareholders ultimately controlled by natural persons
- ❖ *Control*: State-owned shareholders
- ❖ # of Add-on firms held by *Treat1* and *Treat2* groups exceeds that by the *Control* group by 169% and 105% of the national average

$$Y_{it} = \alpha + \beta_1 \text{Treat1}_i * \text{After}_t + \beta_2 \text{Treat2}_i * \text{After}_t + \gamma \text{Controls}_{it} + \delta_i + \delta_t + \varepsilon_{it}$$

	(1)	(2)	(3)
	<i>#FirmAdded</i>	<i>#New</i>	<i>#Existing</i>
<i>Treat1*After</i>	1.690*** (4.57)	1.726*** (5.44)	-0.0049 (-0.38)
<i>Treat2*After</i>	1.048** (2.58)	0.731** (2.11)	0.188 (1.28)
Controls	Y	Y	Y
Shareholder FE	Y	Y	Y
Year FE	Y	Y	Y
N	14717	14717	14717
Adj. R^2	0.430	0.394	0.213
Diff in Coef.	0.642**	0.995***	-0.237**

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ FURTHER DISCUSSION ON IDENTIFICATION

❖ Confounding policies

- ❖ The “Mass Entrepreneurship and Innovation” policy in September 2014
- ❖ The new corporate law enacted in March 2014
- ❖ Target at grassroots entrepreneurs and unlikely drive the results

❖ Heterogeneity in treatment and control groups

- ❖ The treatment group (private shareholders) and the control group (state-owned shareholders) may differ in other dimensions that might be correlated with the outcome variables
- ❖ Allow the impacts of shareholder characteristics to vary before and after the 2013 policy shock
- ❖ Include *Controls * After* or *Controls * Year* in the model specification

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ POTENTIAL FINANCING RISKS: MARGIN CALL RISK

- ❖ Margin call: collateral value falls below 160% of loan amount
- ❖ Typically occurs exactly when shareholders themselves are in financial distress
- ❖ Margin call experience caused by past pledging transactions hinders entrepreneurial activities

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>#FirmAdded</i>	<i>#New</i>	<i>#Existing</i>	<i>#FirmAdded</i>	<i>#New</i>	<i>#Existing</i>
<i>MarginCall</i>	-0.009** (-1.93)	-0.008** (-2.13)	-0.001 (-0.60)			
<i>MarginCallPast</i>				-0.013** (-2.21)	-0.010** (-2.21)	-0.002 (-1.00)
<i>MarginCallCurrent</i>				-0.003 (-0.52)	-0.004 (-0.81)	0.000 (0.01)
Controls	Y	Y	Y	Y	Y	Y
Shareholder FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
N	7909	7909	7909	7909	7909	7909
Adj.R2	0.374	0.341	0.188	0.374	0.341	0.188

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ POTENTIAL FINANCING RISKS: ROLLOVER RISK

- ❖ The median maturity of pledging loans is 1.3 years: too short to support long-term projects
- ❖ Strategy 1: term extension
 - ❖ 8.9% of loans receive term extensions from the same lender
 - ❖ After extension: the median (75th percentile) loan maturities reaches 1.5 (2.1) years
- ❖ Strategy 2: staggered financing scheme
 - ❖ Overlapping pledging transactions in one financing scheme
 - ❖ Median: 4 transactions with an effective maturity of 2.9 years
 - ❖ 75% percentile: 12 transactions with an effective maturity of 4.1 years

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ ROBUSTNESS AND ADDITIONAL ANALYSIS

❖ Evidence on paid-in capital

- ❖ After 2013, increased relative capital contribution by a natural person shareholder:
- ❖ 25.2% in total
- ❖ 18.6% in newly created firms
- ❖ 0.72% in her existing portfolio firms, while insignificant in existing firms that she did not hold before

	(1)	(2)	(3)	(4)
	<i>CapAdded</i>	<i>CapFollow</i>	<i>CapExisting</i>	<i>CapNew</i>
<i>Treat × After</i>	25.163***	0.721**	0.946	18.558***
	(2.88)	(2.46)	(1.04)	(2.91)
Controls	Y	Y	Y	Y
Shareholder FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
N	9445	9445	9445	9445
Adj. R^2	0.262	0.194	0.151	0.241

SHARE PLEDGING AND ENTREPRENEURSHIP

❖ ROBUSTNESS AND ADDITIONAL ANALYSIS

❖ Net entrepreneurial activities

- ❖ Some portfolio firms exit;
- ❖ Main results still hold when replacing #FirmAdded by Δ Firm

	<i>Scaled by avg #FirmAdded in economy</i>		<i>Scaled by avg ΔFirm in economy</i>		<i>Unscaled</i>	
$Y = \Delta$ Firm	(1)	(2)	(3)	(4)	(5)	(6)
<i>Treat*After</i>	2.016***	0.810**	6.633***	2.823***	0.310***	0.099*
	(6.36)	(2.22)	(8.68)	(3.63)	(6.94)	(1.90)
Controls	N	Y	N	Y	N	Y
Shareholder FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
N	10032	9445	10032	9445	10032	9445
Adj. R^2	0.172	0.225	0.176	0.295	0.179	0.257

CONCLUSION

❖ **SHARE PLEDGING FUNDS USAGE**

- ❖ Firm disclosures: 7.8% of the pledging transactions are used for the listed firms
- ❖ Survey evidence: 67.3% firms' largest shareholders used funds outside the listed firm; 33.0% invested in new firms

❖ **SHARE PLEDGING AND ENTREPRENEURSHIP**

- ❖ Share pledging helps entrepreneurial activities
 - ❖ A quasi-natural experiment
- ❖ Industry of add-on firms
 - ❖ Shareholders take advantage of the industrial policies and invest in industries encouraged by the government
 - ❖ Shareholders follow a momentum-like strategy that invests in past winners
- ❖ Potential financing risks
 - ❖ Margin call risk: shareholders are less likely to engage in entrepreneurial activities if they received margin calls in the past
 - ❖ Rollover risk: loan term extensions and staggered financing schemes to secure a stable financing source