

The Real Effects of Financial Crisis

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Presented by Yhing and Pan

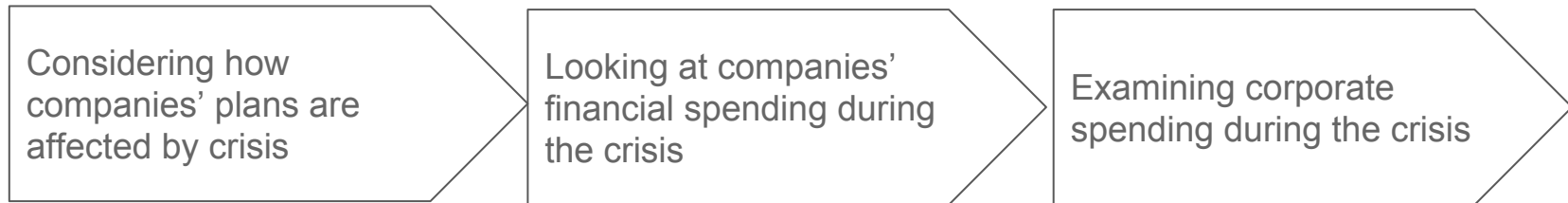
Agenda

- Introduction
- Data
- Firm demographics and corporate policies during the crisis
- Assessing financial constraints from a survey
- Liquidity management in the financial crisis
- Investment spending during the financial crisis
- Conclusion

To analyze the credit crisis in 2008, we can contrast the actions of the firms that are financially constrained or less constrained.

The paper provides a perspective on the impact of the crisis on the real financial decisions made by the corporations around the world.

- 1,050 CFOs in 39 countries in N.America, EU and Asia
- In the fall of 2008, there are two classifications of firms
 1. Firms that are financially constrained
 2. Firm that are less constrained



The difference between the previous research on financial constraints and this paper which added some critical issues.

Previous Research

- Investigating on investment policy
- Examining whether investment is tied more to cash flow

Kaplan and Zingales (1997)

- Looking at the CEO statement about their firms' access to credit

In this paper

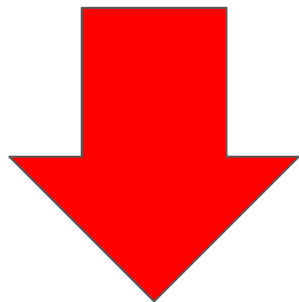
- Characteristics of firms; firm size, dividend paying status and credit ratings
- Adding the the features that asking the managers whether their firms are financially constrained
- Including both public and private companies



The differences between constrained and unconstrained firms becoming more significant as the credit crisis unfold.

- Pro forma plans of companies conditional on whether they are constrained.

The average constrained firms in the U.S. planned



- 11% in Employment
- 22% in Technology spending
- 9% in Capital investment
- 33% in Marketing expenditures
- 14% in Dividend payment

- Use matching estimators by firms size, ownership form, credit rating, profitability, dividend payout status, growth prospect and industry classification.
- Study the behavior of firms that would “DIFFER” in the level that they have access to credit



Whenever, there are some limitations in survey-based analyses

“State of mind”

- CEO perceive that credit was scarce and invest was less attractive.
- **59%** constrained firms complained that cost of borrowing was high
- **55%** talked about difficulties when renewing credit line
- Company that performs poorly before crisis might do worse during to crisis

“Liquidity management”

1. Cash management

- Constrained firms burn about $\frac{1}{5}$ of their liquid assets

2. Line of credit

- **13%** of constrained firms draw to have cash for future
- **17%** draw in case that their banks might deny them compared to **6%** of unconstrained firms

“Credit condition on corporate investment decision”

- **86%** of constrained firms bypass attractive investment due to difficulties in raising external fund
- **56%** of constrained firms cancel investment projects when they are unable to obtain external fund compared to **31%** of unconstrained.



Survey Emails were distributed according to firms size and industry breakdown of the CFO invitations.

Characteristic	Category	Survey Invitations (N)	Surveys Received (N)	Response Rate (%)
Annual Sales Volume	< \$ 1 Billion	6,813	509	7.5%
	> \$ 1 Billion	3,187	170	5.3%
Industry	Retail/Wholesale	1,112	87	7.8%
	Manufacturing	2,321	144	6.2%
	Transportation/Energy	573	42	7.3%
	Communications/Media	372	26	7.0%
	Technology	521	24	4.6%
	Banking/Finance/Insurance	2,308	105	4.5%
	Service/Consulting	691	45	6.5%
	Healthcare/Pharmaceutical	743	51	6.9%
	Other	1,226	141	11.5%

- There are 10,000 survey Email invitation sent to U.S. firms in the last quarter in 2008
- Approximate failure (bounce back) of these invitation is 7%



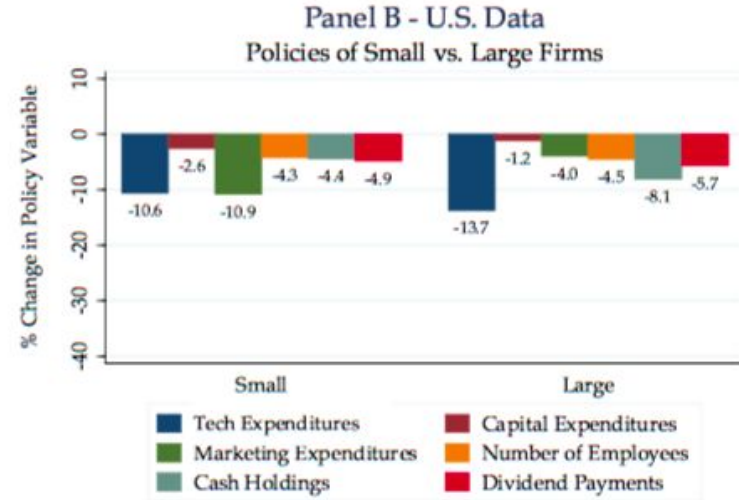
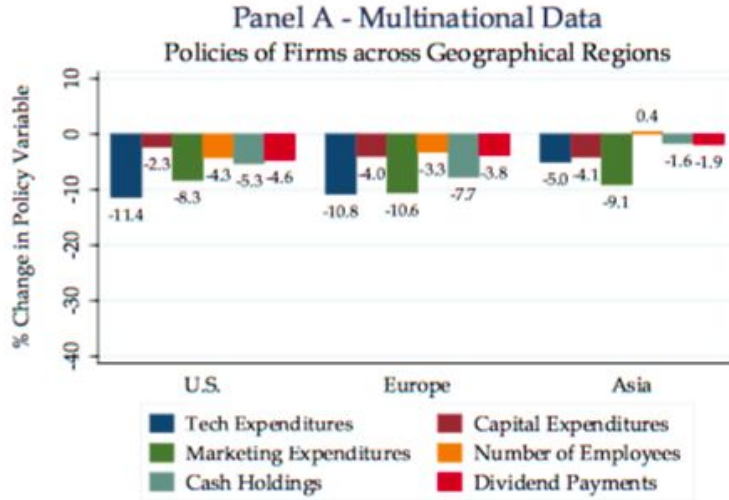
The comparison between the financial constrained survey and Compustat sample

Observable	Category	Survey Sample	Compustat Sample
		Obs. (N) / Freq. (%)	Obs. (N) / Freq. (%)
Size	Small	73 / 56%	3,436 / 69%
	Large	57 / 44%	1,543 / 31%
Credit Rating	Speculative	26 / 27%	698 / 52%
	Investment	70 / 73%	635 / 48%
Profitability	Profits > 0	110 / 87%	3,961 / 80%
	Profits ≤ 0	16 / 13%	1,018 / 20%
Dividend Payments	Dividends > 0	59 / 47%	1,977 / 40%
	Dividends = 0	67 / 53%	3,002 / 60%
		Mean / Median	Mean / Median
Cash/Assets		0.163 / 0.080	0.170 / 0.083

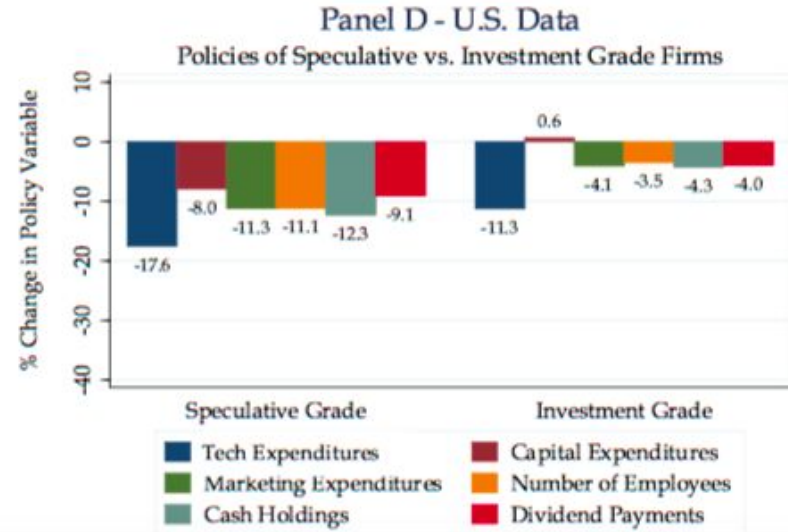
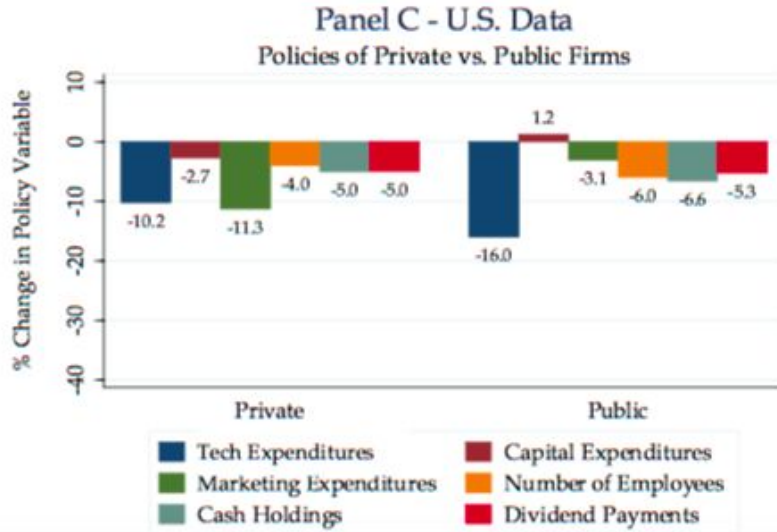
- In term of size the survey samples of 56% have annual sales less than \$1 billion
- 73% of the survey samples have investment grade comparing to 48% of compustat samples
- Profitability and dividend payments are comparable over the two sample
- This implies that the survey sample has “better quality”



Starting by examining the corporate plans, were made in the middle of credit crisis, they classifies into 4 area; Geographics, size, ownership forms and credit rating.



For credit rating, speculative companies significantly reduce all expenditures. The data shows the similar pattern for non-U.S. market.



The survey directly asks whether a company's operations are not affected, somewhat affected, or very affected by difficulties in accessing the credit market.

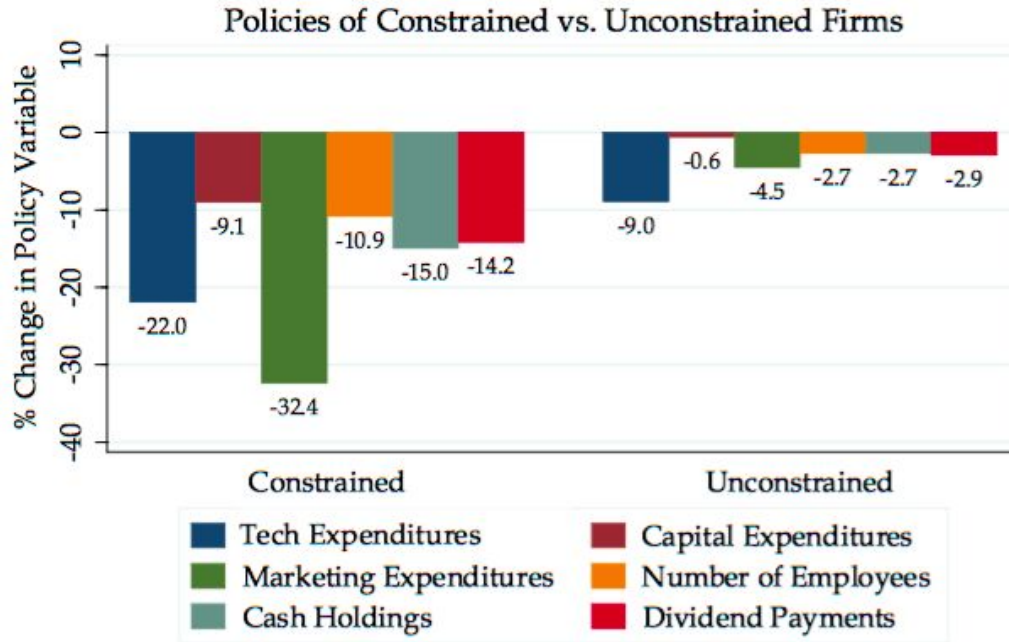
Observable	Category	<i>Not Affected</i>		<i>Somewhat Affected</i>		<i>Very Affected</i>	
		N / % across / % within	N / % across / % within	N / % across / % within	N / % across / % within		
Size	Small	179 / 73% / 41%	163 / 78% / 37%	94 / 82% / 22%			
	Large	65 / 27% / 49%	47 / 22% / 35%	21 / 18% / 16%			
Ownership	Private	142 / 70% / 42%	121 / 73% / 36%	74 / 76% / 22%			
	Public	61 / 30% / 47%	45 / 27% / 35%	24 / 24% / 18%			
Credit Rating	Speculative	6 / 15% / 23%	8 / 25% / 31%	12 / 57% / 46%			
	Investment	35 / 85% / 52%	24 / 75% / 35%	9 / 43% / 13%			
Profitability	Profits > 0	208 / 90% / 47%	156 / 80% / 35%	82 / 71% / 18%			
	Profits ≤ 0	24 / 10% / 25%	40 / 20% / 41%	33 / 29% / 34%			
Dividend Pay	Dividends > 0	76 / 36% / 46%	60 / 35% / 36%	30 / 30% / 18%			
	Dividends = 0	133 / 64% / 43%	111 / 65% / 35%	70 / 70% / 22%			
Growth Prospects	Prospects > 5	193 / 79% / 45%	161 / 77% / 37%	77 / 67% / 18%			
	Prospects ≤ 5	50 / 21% / 36%	49 / 23% / 36%	38 / 33% / 28%			

Credit frictions, quantity constraints, higher cost of external funds or difficulties in renewing credit line reflect whether firms are financially constrained.

Observable	Category	<i>Somewhat Affected</i> Obs. (N) / Freq. (%)	<i>Very Affected</i> Obs. (N) / Freq. (%)
Quantity Constraint	No	105 / 50%	22 / 19%
	Yes	105 / 50%	93 / 81%
Price Constraint	No	125 / 60%	47 / 41%
	Yes	85 / 40%	68 / 59%
Difficult Access to LC	No	169 / 80%	52 / 45%
	Yes	41 / 20%	63 / 55%

81% of very affected firms say that they experience less access to credit, 59% experienced higher cost of funds and 55% have difficulties in accessing credit line.

It is obviously seen that financially unconstrained firms plan much smaller cuts in policies.



- From the survey, no affected and somewhat affected firms are classified as unconstrained firms while very affected firms are constrained firms.
- In Europe, there is modest policy contrasts between both constrained and unconstrained firms which mean that all firms cut their policies during the crisis
- In Asia, firms have differently adapt their business plans

It estimates “the differences” in corporate policies, which are outcomes, for constrained firms relative to those that are unconstrained on every characteristics

Policy	Difference Between Constrained and Unconstrained Firms			
	Pre-Crisis Period		Crisis Period	
	Abadie-Imbens	Dehejia-Wahba	Abadie-Imbens	Dehejia-Wahba
% Change in Technology Expenditures	-5.467*** (-2.61)	-5.369*** (-2.72)	-11.160*** (-3.09)	-11.278*** (-3.00)
% Change in Capital Expenditures	-7.706*** (-2.57)	-7.813*** (-2.63)	-8.494*** (-3.79)	-8.054*** (-2.73)
% Change in Marketing Expenditures	-5.878*** (-3.19)	-5.843*** (-3.19)	-11.709*** (-4.05)	-11.866*** (-3.75)
% Change in Employees	-5.603*** (-4.04)	-5.541*** (-3.43)	-8.431*** (-4.18)	-8.495*** (-3.89)
% Change in Cash Holdings	-3.467 (-1.39)	-3.589 (-1.58)	-8.536* (-1.87)	-8.496** (-2.03)
% Change in Dividend Payout	-7.559** (-1.98)	-7.172* (-1.70)	-28.412** (-2.09)	-27.941** (-1.97)

Note: ***, ** and * indicate statistical significance at the 1%, 5%, and 10% (two-tail) test levels.

4.4 Finer matching during the crisis

-Survey gathers extra information on profitability, dividend payout status and long term growth prospects

- Using these additional data to perform the test of Table 5

Policy	Diff. between constrained and unconstrained firms Crisis period	
	Abadie-Imbens	Dehejia-Wahba
% Change in technology expenditures	-11.468*** (-2.69)	-12.955*** (-2.89)
% Change in capital expenditures	-7.581*** (-2.59)	-6.822** (-2.21)
% Change in marketing expenditures	-12.424*** (-4.15)	-13.240*** (-3.88)
% Change in employees	-5.977*** (-3.90)	-5.326*** (-2.65)
% Change in cash holdings	-7.666* (-1.69)	-9.006** (-2.07)
% Change in Dividend payout	-28.640** (-2.28)	-28.392** (-1.99)

Result

- Some suggested slightly stronger economic magnitude for the difference in outcome
- Firm's difficulty in obtaining credit is a key determinant of differential policymaking over the financial crisis

4.5 Comparison with standard proxies for financial constraint

Policy	Difference Between "Constrained" and "Unconstrained" Firms					
	Pre-Crisis Period			Crisis Period		
	Size	Ownership	Ratings	Size	Ownership	Ratings
% Change in Technology Expenditures	2.304 (1.21)	-1.547 (-1.03)	-4.877** (-2.04)	5.775 (0.87)	0.028 (0.01)	12.601 (1.10)
% Change in Capital Expenditures	3.646 (1.24)	-2.034 (-0.79)	-7.621** (-2.24)	2.246 (0.24)	8.902* (1.80)	15.903 (1.26)
% Change in Marketing Expenditures	2.528* (1.92)	-0.034 (-0.03)	-2.980 (-1.24)	15.259 (0.91)	-7.873 (-0.67)	-12.763 (-1.04)
% Change in Employees	2.640*** (2.79)	0.426 (0.52)	1.723 (1.29)	-6.479 (-1.54)	2.074 (0.79)	-9.202* (-1.73)
% Change in Cash Holdings	4.885* (1.86)	-3.738 (-1.71)	-2.399 (-0.79)	2.372 (0.11)	-5.801 (-0.47)	24.826 (0.67)
% Change in Dividend Payout	-0.615 (-0.18)	0.022 (0.14)	-4.508 (-1.59)	28.022* (1.96)	-6.183 (-1.04)	-13.041 (-0.44)

Note: ***, ** and * indicate statistical significance at the 1%, 5%, and 10% (two-tail) test levels.

The paper tries to average treatment effect (matching estimator) for traditional measure of financial constraint over pre crisis and crisis

Result

Pre crisis

- size: often return the wrong sign
- ownership: indistinguishable from zero
- Rating: sometime return the expected negative relation between financial constraint and corporate policies

Crisis

- was very noisy
- EX: the small firm dividend payout increase during crisis

The analysis suggest that the survey measure of constraint offer a more refined identification than traditional proxies

5. Liquidity management in the Financial Crisis

- This section will investigate how firm manage their cash reserve and bank line of credit.
- Only examine the December 2008 survey
- Focus on two component
 - Cash management
 - Line of Credit

5.1 Cash management

-Compute the average cash-to-assets ratio of constrained and unconstrained firm at time of crisis peak (2008Q4) and one-year prior.

-Conduct in USA, Europe and Asia

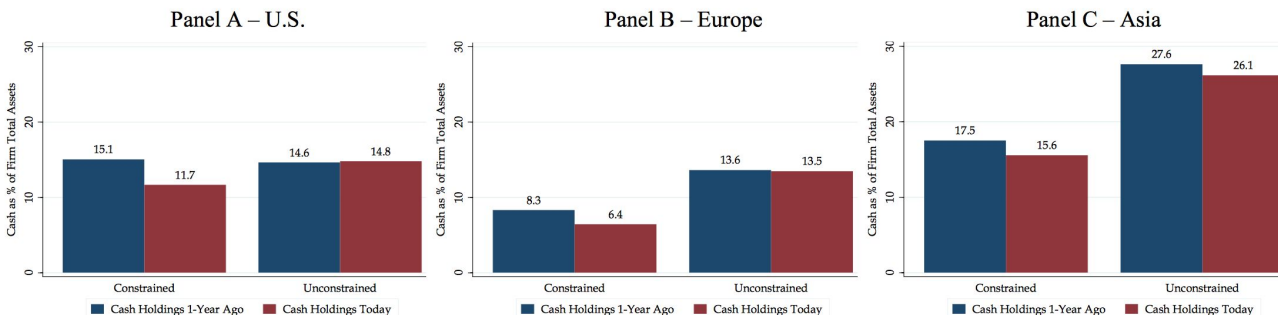


Figure 3: This figure displays cash savings (the ratio of cash and liquid securities to total assets) at the time of the crisis peak (2008Q4) and one year prior. Responses are averaged within sample partitions based on the survey measure of financial constraint. See text for additional details.

Result

- Significant difference between the two groups of firm in term of change in cash
- Similar pattern of cash burn occur in Europe and Asia
- Suggested that financially constrained firms were forced to use their cash reserve

5.2 Managing line of credit

The paper used 3 method to investigate how firm manage their bank line of credit (LCs)

1. Compute the ratio of LC to total asset at the time of the crisis peak(2008Q4) and one year prior.

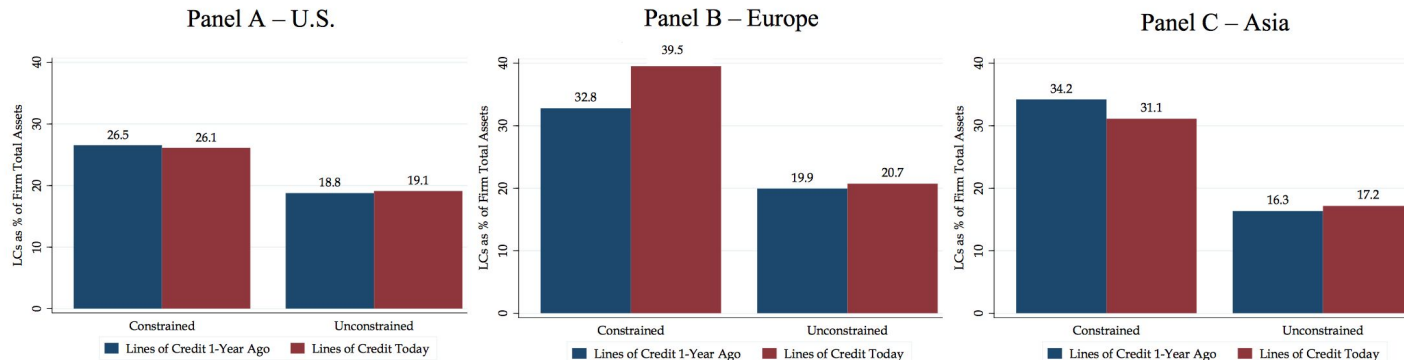


Figure 4: This figure displays line of credit management (the ratio of LC to total assets) at the time of the crisis peak (2008Q4) and one year prior. Responses are averaged within sample partitions based on the survey measure of financial constraint. See text for additional details.

Result

- does not have a significant change in the amount of their outstanding LCs over the year
- Similar pattern occur in Europe and Asia except for the constrained firm in Europe

2 . Find the factors that make companies draw cash from their outstanding LC over the period till the crisis by using standard mean comparison test

The four factor for drawdown

-Liquidity needs

- Precautionary

-Daily operations

- Strategic timing

Policy	Constrained	Unconstrained	Diff. const. – unconst.
Liquidity needs	0.504*** (10.77)	0.282*** (13.34)	0.222*** (4.62)
Daily operations	0.548*** (11.75)	0.421*** (18.14)	0.127** (2.46)
Precautionary	0.130*** (4.14)	0.068*** (5.76)	0.062** (2.19)
Strategic timing	0.165*** (4.75)	0.059*** (5.35)	0.106*** (3.76)

Result

- Significant difference in LC management on financial constrained
- Constrained firms tend to rely on LC more heavily for liquidity needs and fund daily operation
- Similar pattern abroad but constrained firm in Asia manage their LC in order to build a precautionary saving ,while the constrained firms in Europe do not

3. Find that whether manager voluntarily limit their use of LCs ,and if so why?

-compute the proportion of respondent in this option

-avoid paying fee

- interest rate is too high

-preserve their reputation

-saving borrowing capacity

Result

-more interested in saving future borrowing capacity and their reputation

6. Investment spending during the financial crisis

This section investigate on how corporate managers manage their plan to operate and invest during crisis

-Focus on 3 component

- Access to external finance and investment

- The relationship between investment and internal liquidity

- Asset Sales

6.1 Access to external finance and investment

- ask CFO to quantify the degree that their firms access to external financing limits their ability to fund investment project
- Differentiate the time when credit market are “operating normally” vs. “experience crisis”
- allow manager to check one of these 4 option
- no effect - small effect -moderate effect -large effect
- conduct the OLS for their ability to invest in project across the different group categories

Result

Criteria	Category 1	Category 2	Diff. Categories
Panel A: Normal Times			
By Size	0.255*** (12.19)	0.236*** (6.241)	0.019 (0.43)
By Ownership	0.246*** (10.47)	0.272*** (6.81)	-0.026 (-0.58)
By Ratings	0.533*** (5.76)	0.190*** (5.19)	0.344*** (4.00)
By Fin. Constraint	0.464*** (9.81)	0.200*** (10.53)	0.265*** (5.93)
Panel B: Crisis Period			
By Size	0.514*** (21.35)	0.539*** (12.19)	-0.025 (0.50)
By Ownership	0.512*** (18.74)	0.544*** (12.16)	-0.032 (0.61)
By Ratings	0.800*** (10.77)	0.487*** (10.41)	0.313*** (3.15)
By Fin. Constraint	0.857*** (25.81)	0.438*** (18.61)	0.419*** (8.41)

In Panel A

-Speculative and financial constraint firm have higher propensity to link the availability of external financing to their investment

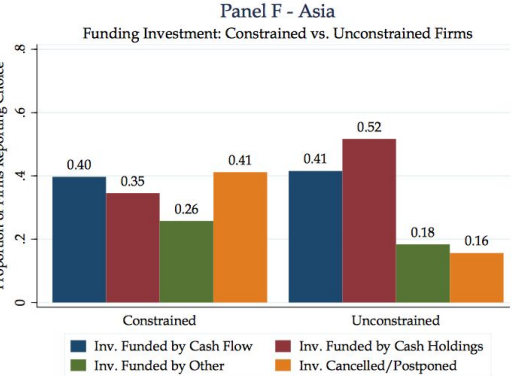
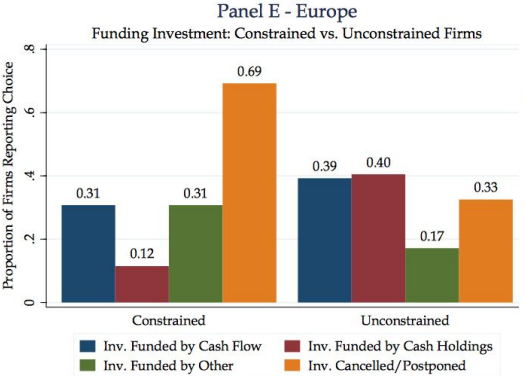
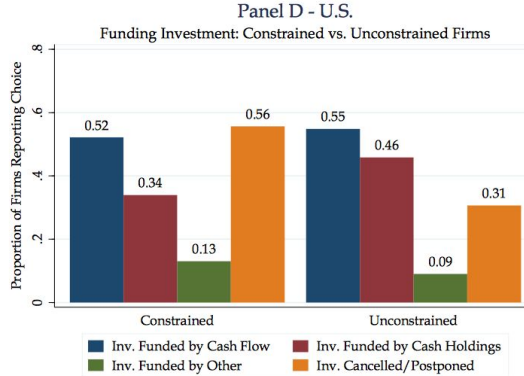
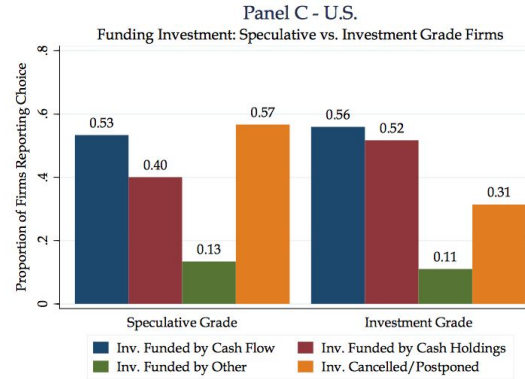
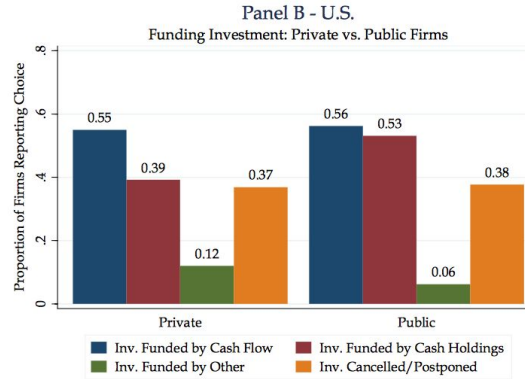
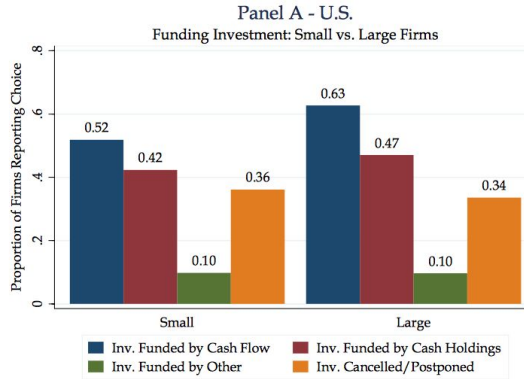
In Panel B

-More firms face difficulty in funding the investment project during crisis

-financial markets seem to matter most for corporate investment

6.2 The relation between investment and internal liquidity

- Compute the proportion of firms on how they fund their investment when external capital is limited with this options
 - cash flow
 - cash holding
 - other sources
 - cancel or postpone
- response across the four firm categorization (size, ownership, rating and financial constraint)



Result

- large, public, investment grade and unconstrained are likely to use internal source of funding for their investment
- suggest that firm with low credit quality and financial constraint likely to cancel their investment

6.3 Asset sales

- Find whether firms were selling more asset during the crisis than in the recent past
- estimate the propensity of firms sell more asset than in previous years across group categories

Result

Criteria	Category 1	Category 2	Diff. categories
By size	0.476*** (9.72)	0.478*** (6.42)	-0.002 (-0.02)
By ownership	0.489*** (9.23)	0.489*** (6.49)	-0.001 (-0.01)
By ratings	0.588*** (4.78)	0.415*** (5.32)	0.174 (1.20)
By fin. constraint	0.700*** (10.69)	0.366*** (7.60)	0.334*** (4.04)

- 70% of constrained CFO sold more asset in the crisis.
- 37% of unconstrained
- similar pattern in non US economies

7. Conclusion

- Survey approach allows us to collect information that cannot be deduced from archival data
- Find the difference behavior of financially constrained and unconstrained firm during the crisis
- Financial crisis systematically affected real investment

“If you over-react to a crisis legislatively it generally ends in disaster.” Thomas Watson, JR.

THANK YOU

Q&A