

# The Real Effects of Financial Constraints: Evidence from a Financial Crisis

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# Do Credit Constraints Affect *Real* Firm Behavior?

Understanding investment–financing interactions is central to corporate research

In particular, understanding whether capital market frictions affect (*distort?*) investment

If we know what is “wrong” with the capital markets, we may be looking into the next question: How to “fix” it?

Literature has difficulties in dealing with issues such as how to measure financial constraints, how to evaluate its consequences [Fazzari, Hubbard, and Petersen (1988), Kaplan and Zingales (1997)]

The global credit crisis of 2008 provides an opportunity to study the effects of financing constraints on corporate behavior:

- One may use it to draw sharper contrasts between firms that are financially constrained versus those that are less so

*We think we have a new approach to research on this topic...*

# Basic Research Design

We survey 1050 CFOs in US, Europe, Asia (39 countries) in Dec. 2008

We use this experimental design to achieve a number of objectives:

- We develop a new, direct measure of financial constraint
- We study if our measure identifies meaningful cross-sectional variation in corporate behavior during the crisis
- We examine how companies' *pro forma* plans (investment, employment, R&D, etc.) are affected by crisis conditional on constraint status
- We look at companies' *financial policies*; in particular, cash savings and line of credit management
- We also examine firms' *investment spending*, looking at circumstances in which investment might be distorted due to credit constraints (including investment cancellation, asset sales)

# Preview of Results: Pro-Forma Plans

- If one uses proxies based on *traditional measures* of constraint, such as size, ownership, and credit ratings...
  - ☞ Small, private, speculative-grade (“constrained”) firms plan for cuts in investment, employment, R&D, etc. that are *as deep as* those of large, public, investment-grade (“unconstrained”) firms
  - ☞ Economically and statistically: no cross-sectional variation for 2009
- If one uses *our direct measure* of constraint...
  - ☞ Strong, statistically significant results show constrained US firms planning to cut employment (by 11%), R&D spending (22%), capital investment (9%), marketing (32%), and dividends (14%) in 2009
  - ☞ Unconstrained firms plan cuts in the range of 0–9% (generally  $\pm$  4%)
  - ☞ Differences are economically and statistically significant
  - ☞ Similar patterns as we cross-check with European and Asian data

# Preview of Results: Pro-Forma Plans

- Policy-maker's problem...
  - ☞ To identify the firms most affected in crisis
  - ☞ Tweak policy variables (like access to credit)
- Our results imply...
  - ☞ Looking at ex-post realizations (e.g., investment), one may find that small (marginal?), private (young?) firms may do worse in the crisis, but this may be unrelated to access to credit
  - ☞ Credit ratings, too, need not reveal a financing channel if firms do not demand credit
  - ☞ Our measure shows that those firms that *face constraints when they demand credit are the ones planning deeper cuts now...*  
...and enacting policy makes sense *now*, not *after* the fact

# Preview of Results: Financial Policy

- Cash policy:
  - ☞ Small, private, speculative (“constrained”) firms : cash stocks are similar before and during crisis
  - ☞ Financially constrained firms ( *our measure*): burn about 20% of their cash stocks from Dec. 2007 to Dec. 2008
- Lines of credit:
  - ☞ Not much variation across firm types in terms of amount outstanding in crisis
  - ☞ But drawing behavior differs across constrained and unconstrained: 17% of constrained (5% unconstrained) firms draw funds for fear that banks will cut their lines
  - ☞ Similar results as we cross-check with European and Asian data

# Preview of Results: Investment–Cash Flows

- Turning down  $NPV > 0$  because of external finance costs:
  - ☞ *Normal times*: 46% of the constrained firms do so
  - ☞ *Current crisis*: 86% of the constrained firms do so
- Using cash holdings and cash flows to fund investment when external finance is too costly
  - ☞ >50% of the constrained firms do so (*but* unconstrained also do it)
  - ☞ 56% (30%) of constrained (unconstrained) firms cancel  $NPV > 0$  investment projects
  - ☞ 70% (37%) of constrained (unconstrained) CFOs are selling more assets in crisis
  - ☞ Similar results as we cross-check with European and Asian data
- We run tests that “emulate” investment–cash flow sensitivities
  - ☞ We account for the “confounding” effects of cancellation
  - ☞ We find that investment–cash flow correlations increase with constraints

# Data: Survey Methodology

- Survey
  - Send CFOs approx. 10,000 E-mail invitations to visit a website
  - November 25 through December 5, 2008
  - Response rate (based on final sample) of about 65% [[Table 1](#)]
  - Unique data:
    - Non-archival, anonymous (more, off-the-record, unspoken info)
    - *Ex-ante* data (uncontaminated by *ex-post* events)
    - Decision-maker planning (helps determine causality in firm policy)
  - Usual caveats: personal biases, question interpretation, 1 X-section
- Central variables (most categorical)
  - Demographics: size, location, industry, ownership (private/public), credit ratings (speculative/investment)
  - Financial: profitability, dividend payments, growth prospects, cash/A (2008 and 2007), LC/A (2008 and 2007)
  - Pro-forma plans: fixed capital, R&D, marketing, employment, cash holdings, dividends



# Data: Survey Methodology

- Benchmarking the data
  - Comparing to Compustat (public, non-financial, for profit): [Table 2](#)
  - Survey sample: more firms above \$1B sales, and investment-grade; similar profitability, dividend payout ratio and cash stocks
- Visual presentation
  - Firm plans by location, size, ownership, credit ratings: [Figure 1](#)
- Are all firms equally affected by the crisis?
  - Figure 1 says *yes!* According to standard measures of financial constraints
- But how good are these constraint measures?
- Should policy-makers pursue a one-size-fits-all approach?
- We gauge the extent that financial constraints affect real activity (*different ly across firms* ) by directly asking CFOs about constraints

# Financial Constraints and Real Firm Policies

- We ask:

Has your company's operations been affected by the cost or availability of credit?

- No
- Yes, somewhat
- Yes, very much

In what ways?

- Decreased availability of credit* [subpart: Denied LC?]
- Increased cost of credit* [subpart: How many basis points?]

- Responses:

- No correlation w/ size, ownership, dividend pay, growth prospects, but some w/ profitability, credit ratings: [Table 3](#)
- Visual representation of the answers: [Figure 2](#)
- Quantifying the differences across constraint types: [Table 4](#)

# Financial Constraints and Real Firm Policies

- Is it right to compare (a) all of the firms who say they are constrained with (b) all who say they are not to assess cross-sectional differences in firm responses to the crisis? [CS]
- Aren't "constrained firms" often small, private, with poor ratings?
- Wouldn't "constrained firms" always report these depressed plans, regardless of the current crisis?
- We have two expedients to deal with these questions
  - We use *matching estimators* to ensure that our credit constraint comparisons are not just conveying (confounding) information of firm status based on size, ownership form or credit ratings
  - Luckily, we can use responses from prior surveys (back to 2007Q3) to assess *time variation* in the cross-sectional differences we report
- [Table 5](#) reports the results of these experiments
  - Cross-sectional differences are the *same* across estimators
  - Cross-sectional differences are *magnified* in crisis

# Financial Constraints and Real Firm Policies

- Would one find better contrasts using the same experiments, but defining constraints according to standard measures?
  - No, according to [Table 6](#)
- Are other sources firm heterogeneity totally controlled for?
- Wouldn't firms with poor performance coming into the crisis (low cash flows) and/or poor investment outlook (low  $Q$ ) also say they are *both* constrained *and* plan to invest less?
- To assess financial performance and economic status of firms coming into the crisis, we ask questions about their cash flows, dividend distributions, and growth prospects
- These yield categorical variables which we add to our set of covariates in a new rounds of M.E.s
- No "bullet-proof" controls as survey instrument limits what we can ask (hard to get exact 'profit margins', 'leverage ratios', etc.)

# Financial Constraints and Real Firm Policies

- [Table 7](#) reports the results for additional controls
  - Policy differences across constrained and unconstrained firms based on matched firm pairs that are in the same size category, ownership category, ratings category, profitability category, payout category, growth prospects category, and the same industry. All at the same time: 2008 crisis
  - Controlling for firm financial status (profits and dividends) or economic prospects (“Q” and industry) does not change the results about the direct measure of financial constraints
- We do not claim *strict causality* from financial constraints, but the *correlations* we identify help us understand if/how credit frictions are associated with *real firm outcomes*
- Clearly, firms are not randomly constrained, but our proxy is not subsided by many observables...
  - ...Task going forward (future research) is to identify the “determinants” of financial constraints

# Financial Constraints and Liquidity Management

- How do firms manage liquidity during the crisis?

## 1. Cash savings behavior across firm types

- Results in [Figure 3](#) and [Table 8](#)
- No discernible differences across size, ownership or ratings categories
- Constrained firms (*survey measure*) reduce their cash stocks by 3.3%, from a previous level of about 15% of total assets
- Generally similar results in Europe and Asia

# Financial Constraints and Liquidity Management

## 2. Managing lines of credit (LCs)

- LC quantity data can only be gathered “manually” from the financial statements of public firms
- Virtually no other study has data from private firms, esp. drawdowns [but see Agarwal et al. (2004), Campello et al. (2009)]
- Little to infer from existing LCs (quantities), other than the fact that nothing seems to have changed – LCs don’t seem to be revoked  
See [Figure 4](#)
- We ask CFOs about the reasons they are drawing from their LCs
- A lot to infer from LC drawdowns. See [Table 9](#)
  - *Liquidity needs? Daily operations? Save for future needs?*
    - Mixed answers across standard categorizations
  - *Drawing for fear your bank will cut the line later?*
    - Strong indication that constrained firms (only) do just that!
  - Similar patterns in Europe and Asia
- We also ask about reasons for limiting drawdowns
  - Large, public firms avoid using LCs to “save reputation” w/ market

# Financial Constraints and Investment

- Until now, our results are consistent with constraints leading to cuts in investment, but unclear if *distortionary*
- We now ask: *Does your firm's access to external credit limit its ability to fund positive NPV investments?*
  - No
  - Yes, somewhat
  - Yes, moderately
  - Yes, very much
- A “better” question for financial constraints?
  - Perhaps less general about access to credit
  - But “closer to the theory” on impact of financial constraints on investment
  - Questions whether the availability of financing— *rather than availability of investment opportunities*—drives firm’s *observed* investment
  - We will use this measure when later looking at substitution between internal and external finance in funding investment
- For now, we want to see how constrained and unconstrained firms respond to a “coarse version” of this question. 2 × 2 tables



# Financial Constraints and Investment

- We ask CFOs to classify their answers for:
  - “Normal Times” [[Figure 7](#); [Table 10](#)]
  - “Current Crisis” [[Figure 8](#); [Table 11](#)]
- Results:
  - Inability to access credit “distorts” small, large, private, and public firms’ investment decisions equally
  - Inability to access credit “distorts” speculative and financially constrained firms’ investment decisions by more
  - Patterns are *exacerbated* during the crisis
  - Europe and Asia: *Only* financially constrained firms’ investment distorted

# Financial Constraints and Investment

- A large literature examines whether financial constraints matter by relating firms' investment and internal resources
  - Example: Look at investment–cash flow sensitivities
- We *ask* CFOs if they use cash flows, cash stocks to fund  $NPV > 0$  investment when external credit is costly
- We also ask if they *cancel investment* if external credit is costly
- We also ask if they have been *selling assets* to finance investment
- Results are in [Figure 9](#) and [Table 12](#)
  - No cross-type differences in correlation between internal resources (cash flows and cash stocks) and investment ...*but more on this later!*
  - Fin. constrained, speculative firms more likely to cancel investment
  - Fin. constrained firms (only) sell more assets

# More on Investment–Cash Flows

- Focus on investment–cash flow sensitivities: *Very* controversial
- *Endless* disputes: Fazzari et al. (1988, 2000), Kaplan-Zingales (1997, 2000), Erickson-Whited (2000), Gomes (2001), Alti (2003), Cummins et al. (2006), Almeida-Campello (2007)
- To see if financial constraints matter, these studies usually impose “uniform/universal” investment models to fit all firms
  - Tests implemented via econometric techniques using ex-post data
  - Results are as good as the ability of *ex-post* data to capture *intended* policies and the quality of the models fitted on data
- *We have a different take on this...*
- Each CFO has his own “hard-to-specify” investment model, and standard models may fail to gauge info about manager’s “constrained optimization problem” based on the relation between investment and cash flow
- We *ask* CFOs about that (cor-)relation, as opposed to *estimating* it

# More on Investment–Cash Flows

- We also *ask* if their firms are likely to *cancel* investment. *Big deal?*
  - For these firms, *observed* investment *deviates* from investment *demand*
  - OLS estimates of investment–cash flow sensitivities are *problematic* if firms will *cancel* investment
    - Take 2 firms with the same  $\mathbb{E}$ : If the more constrained cancels investment ( $Inv=0$ ), one infers that the I–CF *declines* with constraints
    - We'll make sure comparisons are more “conformable”
  - First paper that does this! [but Lamont (2000) is related]
- We also *ask* about CFOs' assessment of firm's long-term growth
  - This works in lieu of Tobin's  $Q$ , which is problematic and is only available for public firms
  - *Key observation*: The growth prospects the *firm's decision-maker* has in mind when choosing policies
  - *Caveat*: Measure in 1–10 scale, potentially noisy (e.g., over-optimism)
  - Empirical proxy well-behaved: mean=6.7, med=7, var=4.3, skew=-0.5. Also, highly positively correlated with investment

# More on Investment–Cash Flows

- What do we do?
- We look at what drives I–CF correlations
- For the entire sample, we regress I–CF on:
  - Dummies for access to external credit to fund NPV>0:
    - Four *increasing* categories (prior question)
  - Controls for long-term growth, investment plans, cash funding, etc.
- Then, we condition regressions on non-cancellation of investment
- Results in [Table 13](#)
  - On the entire sample: External financing constraints do not influence whether the firm associates cash flows and investments
  - On the sample w/o investment cancellation: Investment–cash flow correlations *go up monotonically* with financial constraints

# Conclusion

- We try to learn about links between the financial markets and real firm decisions *in the crisis* by asking CFO about these links
- We survey 1,050 CFOs in 39 countries and ask questions about:
  - Their access to credit (before and during the crisis)
  - Their firms' *pro forma* plans (investment, employment, etc.)
  - Their firms' liquidity management (cash savings and ICs)
  - Their firms' strategies in dealing with investment needs in the face of high external financing costs
    - Propensity to use cash stocks and cash flows to fund investment
    - Propensity to cancel investment, sell assets
- Our results suggest that the crisis has a large impact on investment, but unequally across firms
- Our paper isolates these differences, which is important for policy
- We think one can learn from this additional source of information. And researchers should more often use "evidence from the field" to check their theories and empirics

# Table 1: Survey Response Rates (U.S.)

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%



## Table 2: Comparing Survey Data and COMPUSTAT

Observable	Category	Survey Sample		CompuStat Sample	
		Obs. (N)	Freq. (%)	Obs. (N)	Freq. (%)
Size	Small	73	56%	3,436	60%
	Large	57	44%	1,543	31%
Credit Rating	Speculative	26	27%	698	48%
	Investment	70	73%	635	52%
Profitability	Profits $> 0$	110	87%	3,961	80%
	Profits $\leq 0$	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	





## Table 3: Financial Constraint Categories

Observable	Category	<i>Not Affected</i>	<i>Somewhat Affected</i>	<i>Very Affected</i>
		Obs. (N) / Freq. (%)	Obs. (N) / Freq. (%)	Obs. (N) / Freq. (%)
Size	Small	65 / 27%	47 / 22%	21 / 18%
	Large	179 / 73%	163 / 78%	94 / 82%
Ownership	Private	142 / 70%	121 / 73%	74 / 76%
	Public	61 / 30%	45 / 27%	24 / 24%
Credit Rating	Speculative	6 / 15%	8 / 25%	12 / 57%
	Investment	35 / 85%	24 / 75%	9 / 43%
Profitability	Profits > 0	208 / 90%	156 / 80%	82 / 71%
	Profits ≤ 0	24 / 10%	40 / 20%	33 / 29%
Dividend Payments	Dividends > 0	76 / 36%	60 / 35%	30 / 30%
	Dividends = 0	133 / 64%	111 / 65%	70 / 70%
Growth Prospects	Prospects > 5	193 / 79%	161 / 77%	77 / 67%
	Prospects ≤ 5	50 / 21%	49 / 23%	38 / 33%
Quantity Constraint	No	N.A.	105 / 50%	22 / 19%
	Yes	N.A.	105 / 50%	93 / 81%
Price Constraint	No	N.A.	125 / 60%	47 / 41%
	Yes	N.A.	85 / 40%	68 / 59%
Difficult Access to LC	No	N.A.	169 / 80%	52 / 45%
	Yes	N.A.	41 / 20%	63 / 55%



Table 4: Policy Diff. Across Constraint Types: OLS/ Crisis Period

Policy	Constrained	Unconstrained	Difference Const. – Unconst.
% Change in R&D Expenditures	-21.954*** (-5.31)	-8.980*** (-6.13)	-12.974*** (-3.58)
% Change in Capital Expenditures	-9.062** (-2.38)	-0.610 (-0.46)	-8.452*** (-2.59)
% Change in Marketing Expenditures	-32.375** (-2.49)	-4.520* (-1.78)	-27.855*** (-3.41)
% Change in Employees	-10.867*** (-5.81)	-2.720*** (-4.81)	-8.148*** (-5.56)
% Change in Cash Holdings	-14.988*** (-5.85)	-2.740*** (-3.03)	-12.249*** (-5.56)
% Change in Dividend Pay	-14.176*** (-4.05)	-2.926*** (-3.44)	-11.251*** (-4.62)

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



Table 5: Policy Difference Across Constraint Types:  
Matching Estimators, Pre-Crisis and Crisis Periods

Policy	Diff. Between Constrained and Unconstrained			
	Pre-Crisis Period		Crisis Period	
	Abadie-Imbens	Dehejia-Wahba	Abadie-Imbens	Dehejia-Wahba
% Change in R&D 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 Pay	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.



## Table 6: Using Standard Measures of Constraints in M.E. Tests

Policy	Difference Between “Constrained” and “Unconstrained”					
	Pre-Crisis Period			Crisis Period		
	Size	Ownership	Ratings	Size	Ownership	Ratings
% Change in R&D 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 Pay	-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.



## Table 7: M.E.s and Additional Firm Heterogeneity

Policy	Diff. Between Constrained and Unconstrained Crisis Period	
	Abadie-Imbens	Dehejia-Wahba
% Change in R&D 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 Pay	-28.640** (-2.28)	-28.392** (-1.99)

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



Table 8: Cash Savings Behavior Across Firm Types (% terms)

Criteria	Category 1	Category 2	Diff. Categories
By Size	-0.443 (-1.05)	-0.413 (-0.89)	-0.031 (-0.04)
By Ownership	0.188 (0.41)	-1.177 (-1.51)	1.365 (1.51)
By Ratings	0.017 (0.02)	-0.687 (-1.08)	0.704 (0.54)
By Fin. Constraint	-3.325*** (-3.13)	0.195 (0.59)	-3.520*** (-4.16)



# Table 9: LC Management (Drawdowns) Across Firm Types

Criteria	Policy	Category 1	Category 2	Diff. Categories
By Size	Liq. Needs	0.334*** (14.84)	0.299*** (7.52)	0.036 (0.77)
	Daily Oper.	0.464*** (19.48)	0.373*** (8.90)	0.091* (1.85)
	Precautionary	0.061*** (5.56)	0.142*** (4.69)	0.080*** (3.02)
	S. strategic Timing	0.070*** (5.77)	0.112*** (4.09)	0.041 (1.55)
By Ownership	Liq. Needs	0.377*** (14.37)	0.246*** (6.49)	0.131*** (2.70)
	Daily Oper.	0.535*** (19.51)	0.315*** (7.71)	0.220*** (4.35)
	Precautionary	0.061*** (4.72)	0.138*** (4.55)	0.077*** (2.73)
	S. strategic Timing	0.064*** (4.84)	0.131*** (4.41)	0.066** (2.35)
By Ratings	Liq. Needs	0.435*** (4.71)	0.288*** (6.88)	0.145 (1.53)
	Daily Oper.	0.567*** (6.16)	0.314*** (7.31)	0.253*** (2.61)
	Precautionary	0.235*** (2.97)	0.110*** (3.81)	0.123* (1.77)
	S. strategic Timing	0.133** (2.11)	0.110*** (3.81)	0.023 (0.35)
By Fin. Constraint	Liq. Needs	0.504*** (10.77)	0.282*** (13.34)	0.222*** (4.62)
	Daily Oper.	0.545*** (11.75)	0.421*** (18.14)	0.127** (2.46)
	Precautionary	0.130*** (4.14)	0.068*** (5.76)	0.062** (2.19)
	S. strategic Timing	0.165*** (4.75)	0.059*** (5.35)	0.106*** (3.76)



Table 10: Would Drop NPV>0 if Expensive Credit: *Normal Times*

Criteria	Category 1	Category 2	Diff. Categories
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)





Table 11: Would Drop NPV>0 if Expensive Credit: *Crisis Period*

Criteria	Category 1	Category 2	Diff. Categories
Panel A: U.S.			
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)
Panel B: Europe			
By Size	0.352*** (8.12)	0.582*** (8.67)	-0.229*** (-2.91)
By Ownership	0.417*** (8.74)	0.452*** (7.09)	-0.035 (-0.44)
By Ratings	0.353*** (2.95)	0.400*** (5.72)	0.047 (-0.34)
By Fin. Constraint	0.800*** (9.80)	0.358*** (9.14)	0.442*** (4.34)



Table 12: Sale of Assets in Exchange for Funds During the Crisis

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)



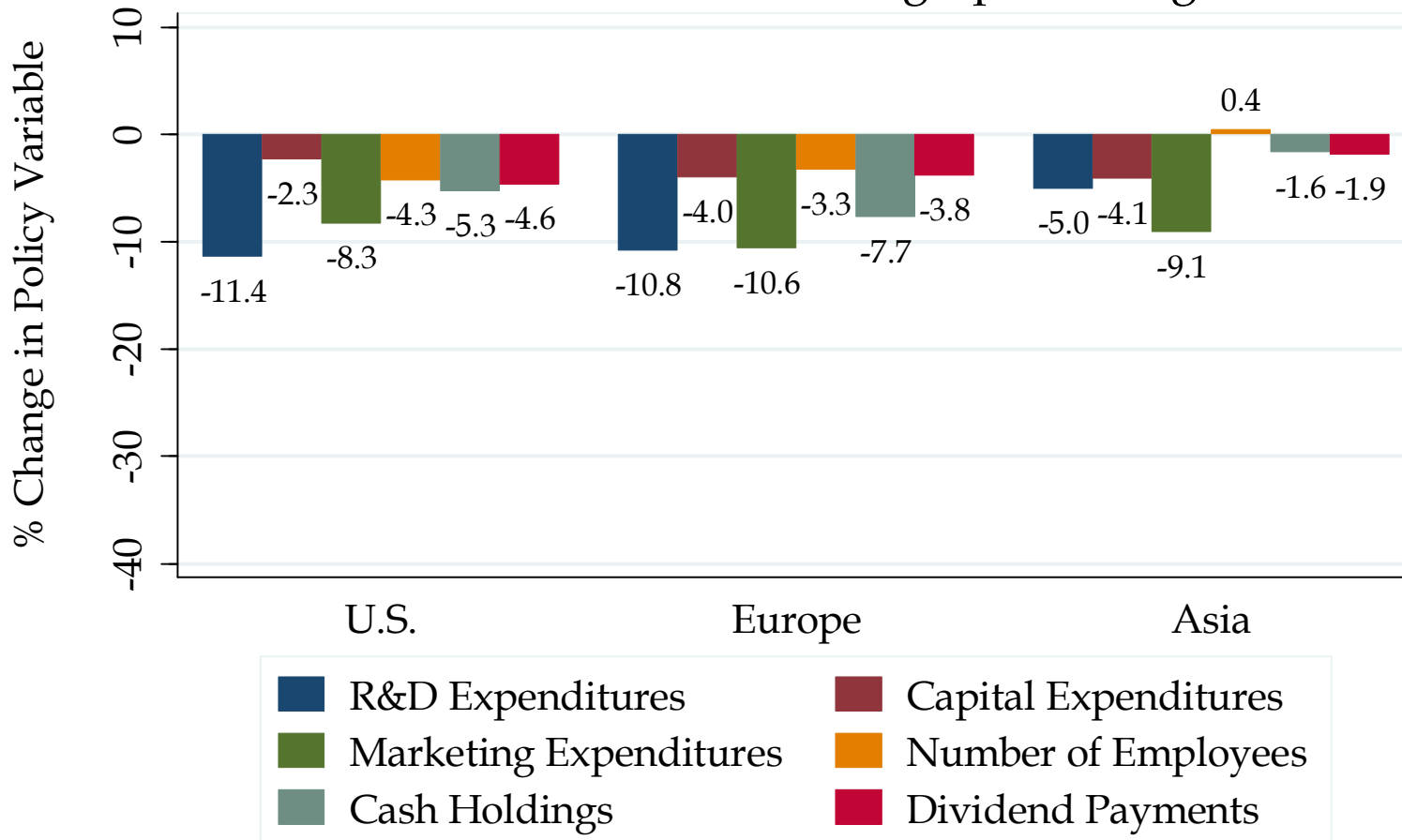
# Table 13: The Relation between Investment and Cash Flows

Independent Variables	All Sample Firms		Firms not Cancelling Investment	
	(1)	(2)	(3)	(4)
<i>SmallEffect</i>	0.021 (0.68)	0.071 (1.59)	0.007 (0.14)	0.102** (2.55)
<i>ModerateEffect</i>	0.023 (0.87)	0.023 (0.76)	0.097** (1.97)	0.150*** (4.11)
<i>LargeEffect</i>	0.066 (1.08)	0.018 (0.25)	0.234*** (5.83)	0.258*** (4.53)
<i>Growth</i>		0.018 (0.25)		0.024 (0.22)
<i>InvestmentPlans</i>		-0.001 ( 0.96)		0.001 (0.52)
<i>EmploymentPlans</i>		0.005*** (3.86)		0.002 (1.11)
<i>CashStockFunding</i>		-0.241*** ( 4.47)		-0.325*** ( 6.92)
<i>OtherFunding</i>		0.338*** ( 3.22)		0.516*** ( 5.72)
constant	0.511*** (23.86)	0.639*** (3.19)	0.659** (27.24)	0.681*** (4.98)
Exclusion <i>F</i> -test: { <i>SmallEffect</i> , <i>ModerateEffect</i> , <i>LargeEffect</i> }	[0.60]	[0.17]	[0.00]	[0.01]
Restriction <i>F</i> tests: <i>SmallEffect</i> – <i>ModerateEffect</i>	[0.87]	[0.41]	[0.06]	[0.26]
<i>ModerateEffect</i> – <i>LargeEffect</i>	[0.51]	[0.95]	[0.05]	[0.04]
N	446	339	282	213
Adj <i>R</i> <sup>2</sup>	0.02	0.12	0.07	0.24



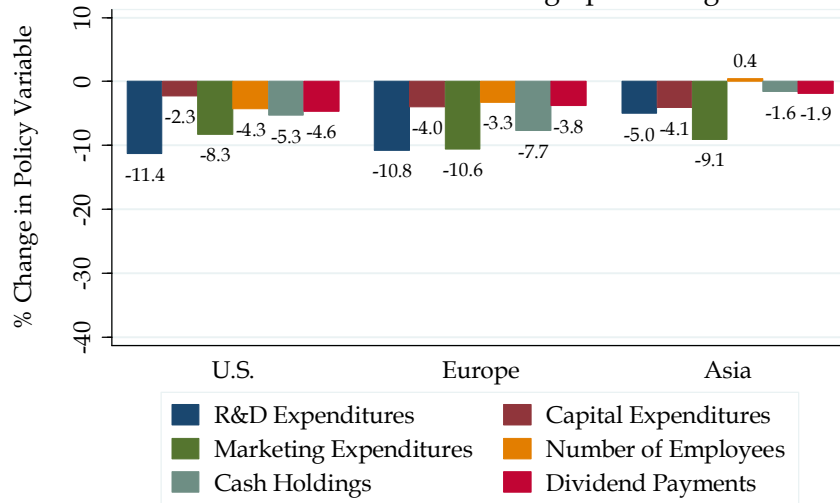
# Figure 1

## Panel A - Multinational Data Policies of Firms across Geographical Regions

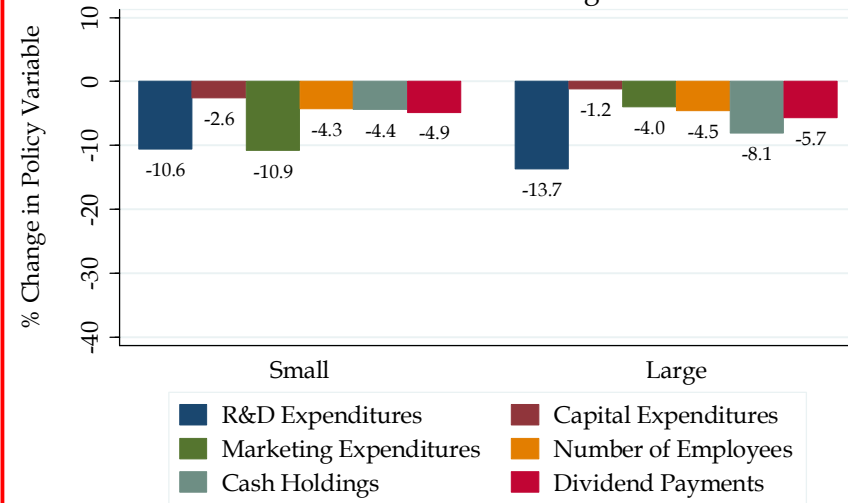


# Figure 1

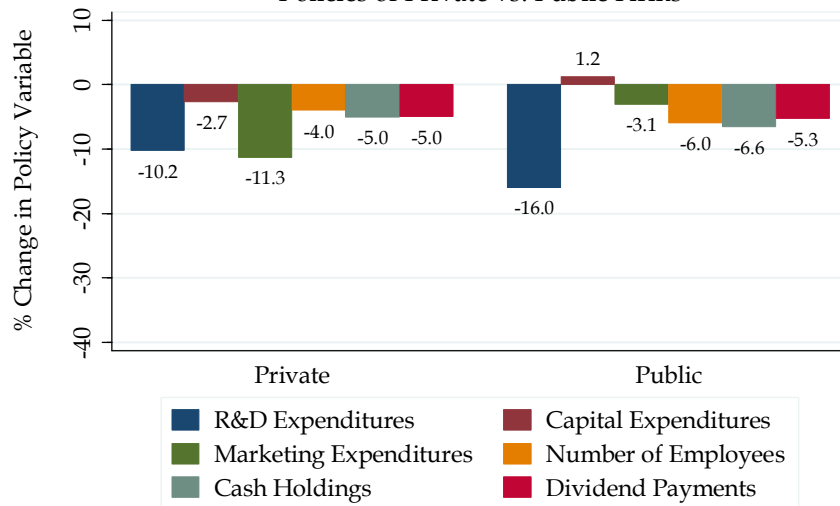
## Panel A - Multinational Data Policies of Firms across Geographical Regions



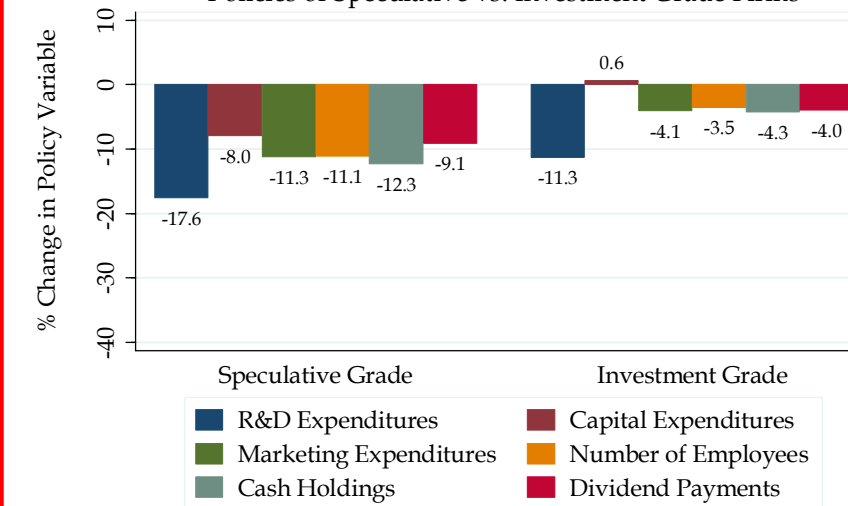
## Panel B - U.S. Data Policies of Small vs. Large Firms



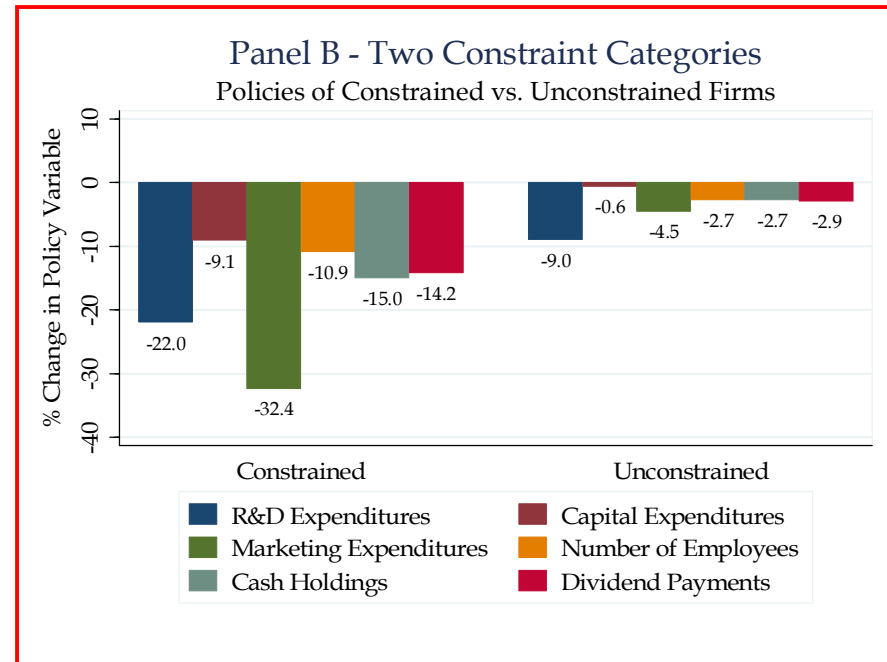
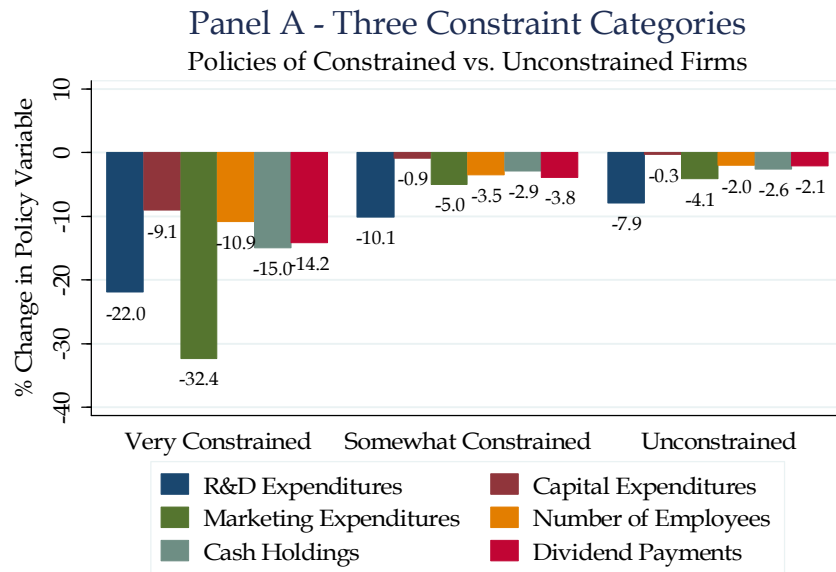
## Panel C - U.S. Data Policies of Private vs. Public Firms



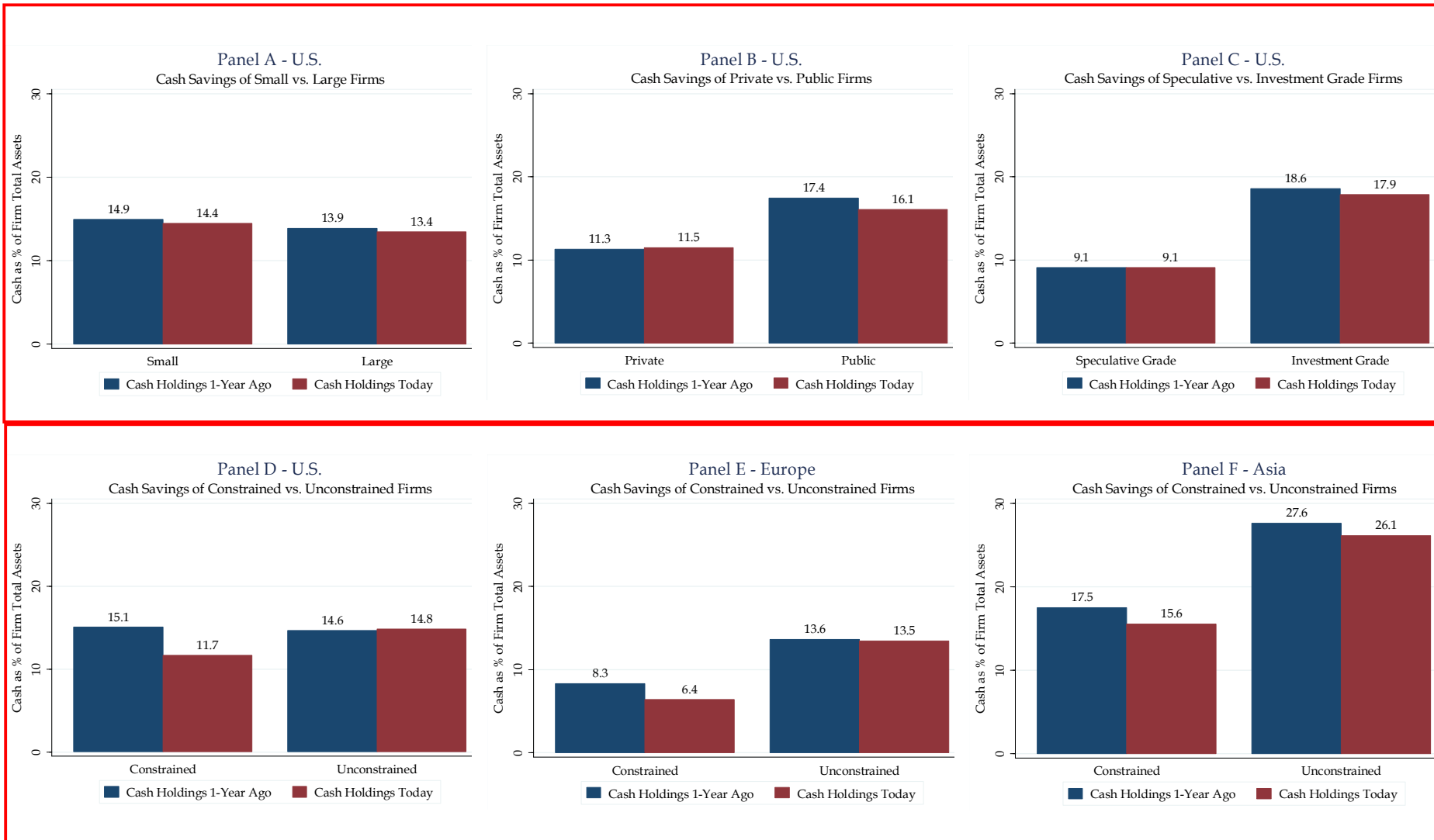
## Panel D - U.S. Data Policies of Speculative vs. Investment Grade Firms



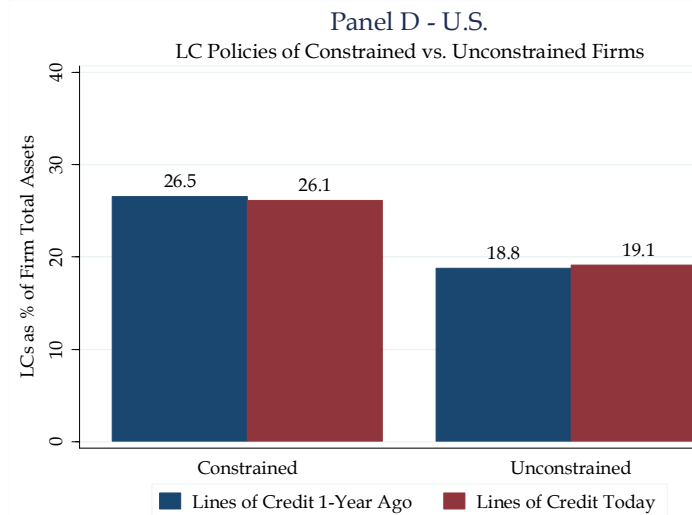
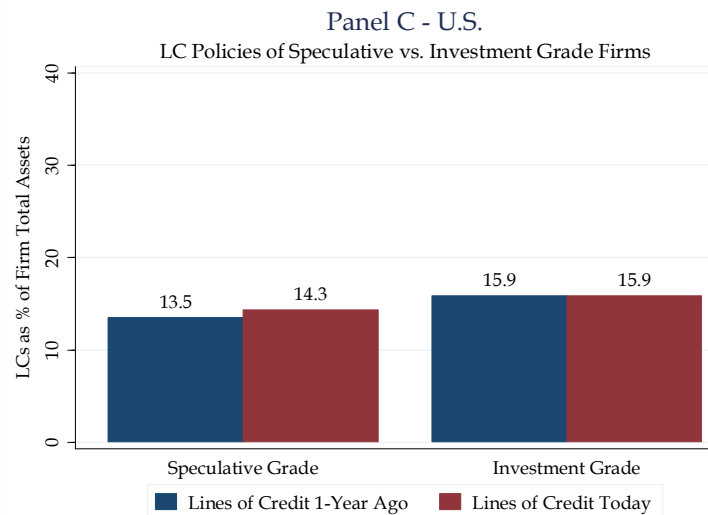
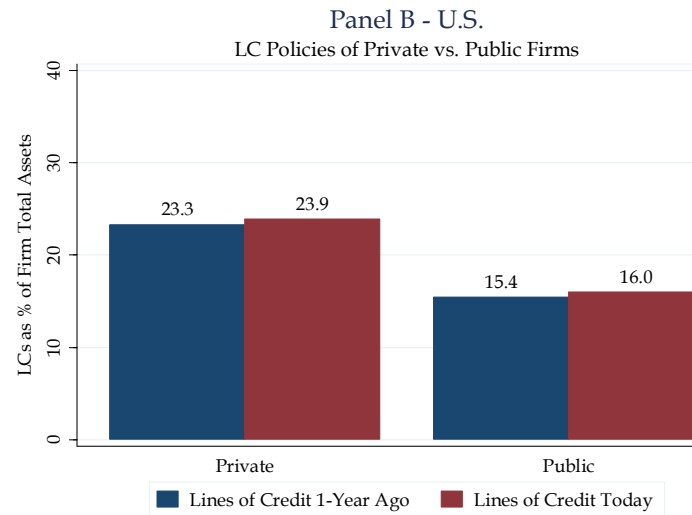
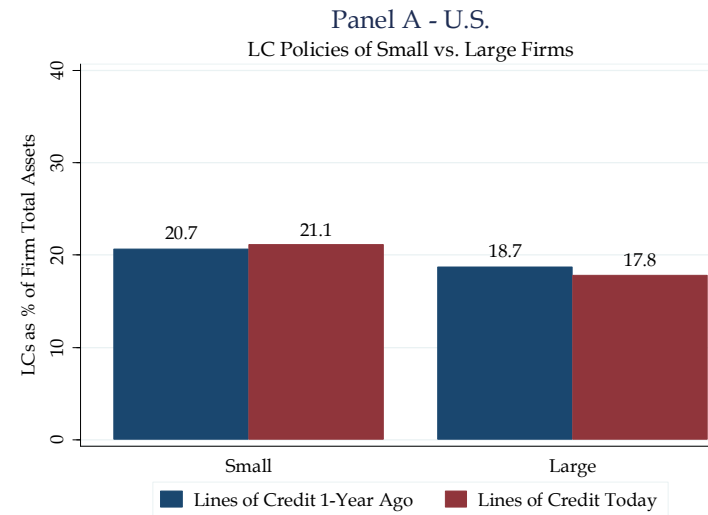
# Figure 2: Policy Responses According to Constraint Types



# Figure 3: Cash Savings Behavior Across Firm Types

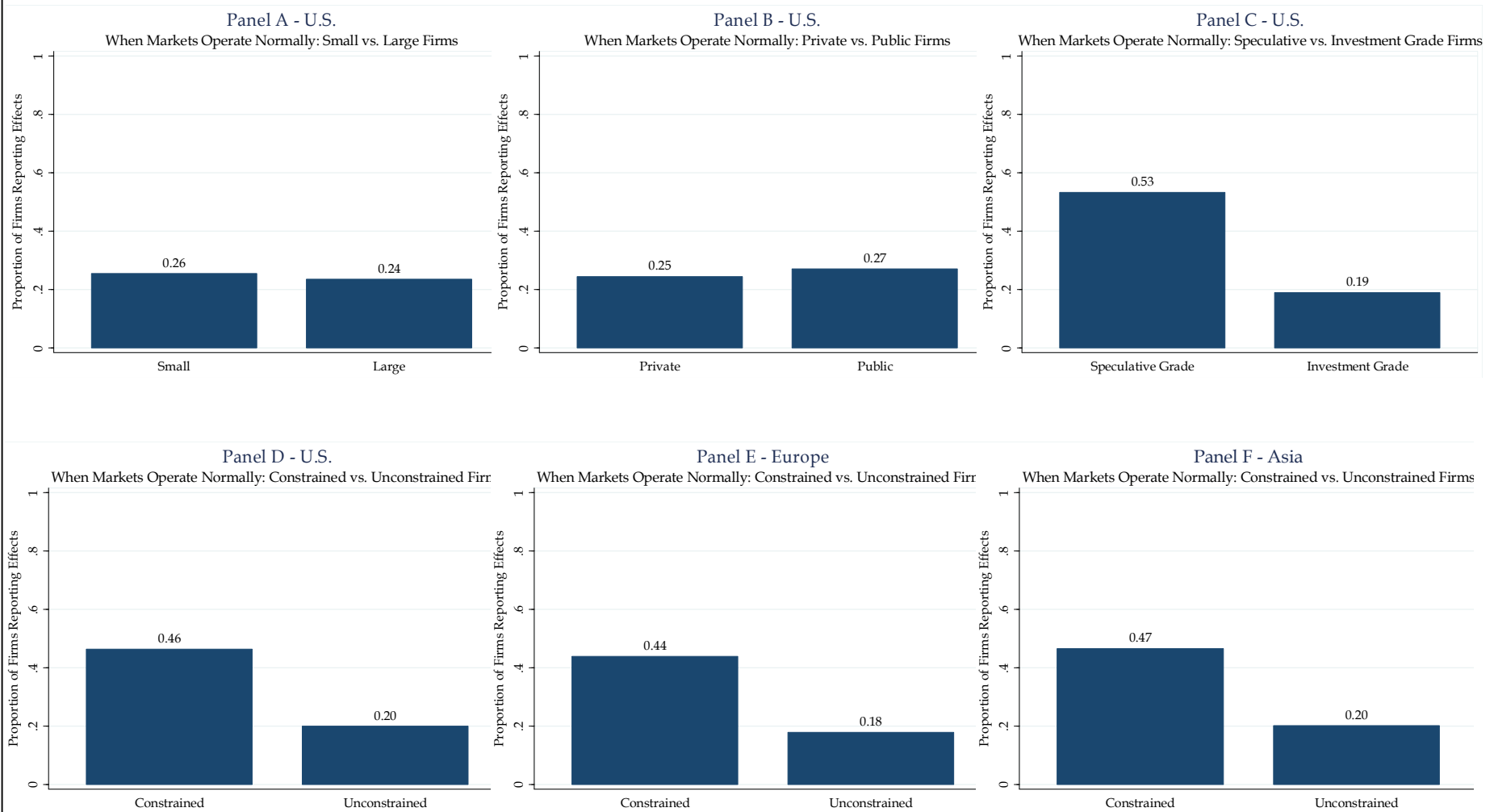


# Figure 4: LCs Across Firm Types

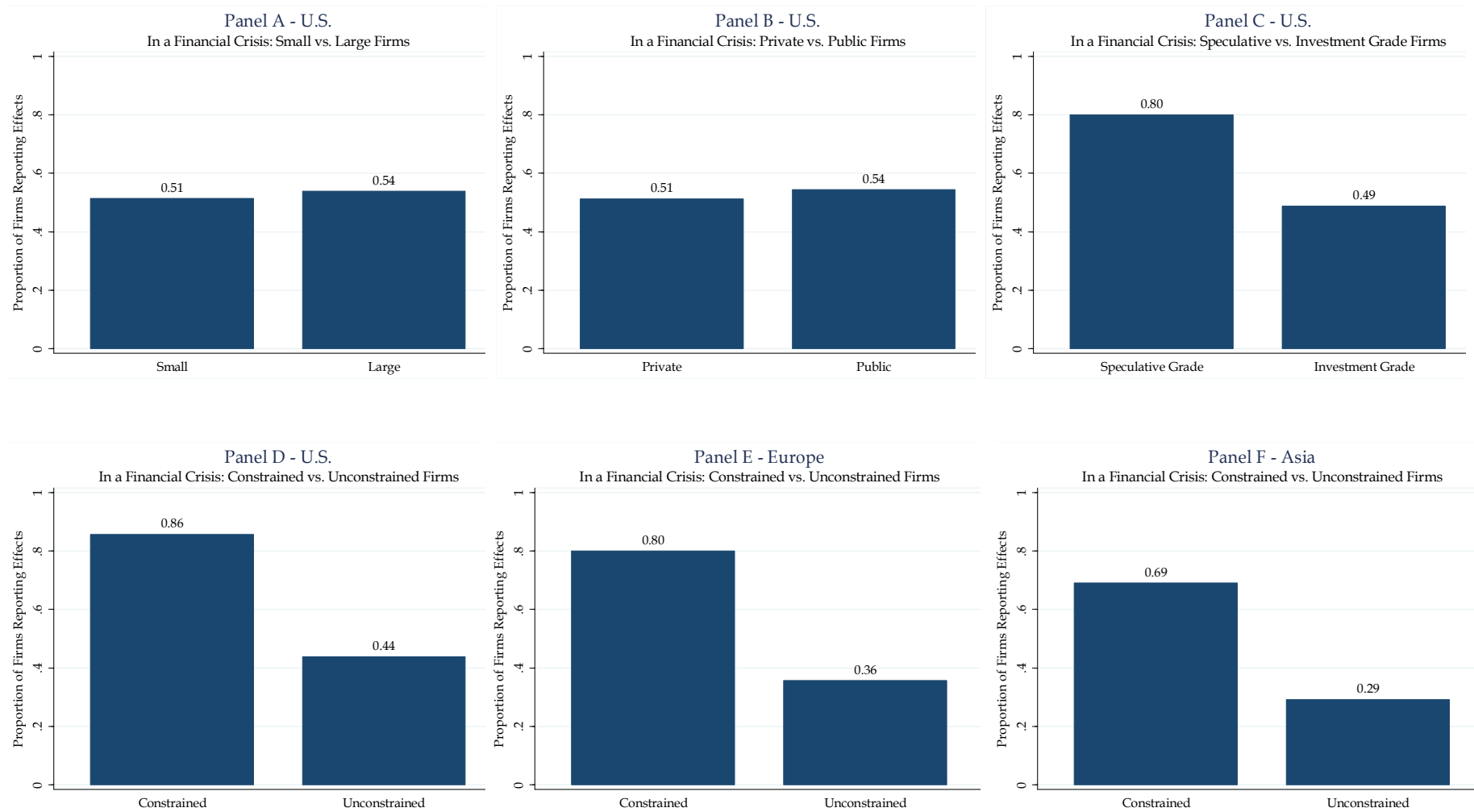




# Figure 7: Would Drop NPV>0 if Expensive Credit: *Normal Times*



# Figure 8: Would Drop NPV>0 if Expensive Credit: *Crisis Period*



# Figure 9: Investment Funding

