Paper Reading

Goal of Paper

The goal of this paper is to examine how managerial risk aversion can shape corporate decisions when external discipline weakens. By exploiting staggered changes in state-level takeover laws (Business Combination Laws) as a natural experiment, the authors show that when managers are better protected from takeover threats, they take actions to reduce firm risk — such as lowering stock return volatility and increasing cash holdings — revealing agency conflicts between shareholders and risk-averse managers.

Research Framework

(1) Paper tries to distinguish between:
①Exposure to the firm's idiosyncratic risk leads the risk-averse manager to require the project to achieve a higher NPV for a given level of risk;
②Manager is reluctant to exert costly effort;
③Private benefits influence the man- ager's decision in two ways.

(2) Leverage makes $\Delta\sigma$ more sensitive.
More inside ownership: ①reduces influence of effort and private benefits, ②increases manager's exposure to the firms' risk, thus incentive to play it safe.

(3) The G-index from Gompers, Ishii, and Metrick (2003) observed that the higher G-index, the lower stock volatility, the lower cash flow volatility, the higher cash holdings & the more diversifying acquisitions. But the relationship might not be causal, thus needs improvement.

(4) Model:
The paper uses:

$$y_{ijlst} = \beta_1 BC_{st} + f_i + \omega_{lt} + \lambda_{jt} + \eta_{ijlst},$$

which is a DID method to compare companies in BC law state versus non-law state.

(5) Data:
Sample period is 1976–2006;
Financial data from Compustat;
Acquisition data from SDC Mergers and Acquisitions Database;
Location data from Cohen (we do replication from WRSD);

Exclude regulated utility firms (SIC codes 4900–4999) & firms outside US, and firm-year observations with either missing or negative assets or sales;
Financial ratios are winsorized at the 1% level;
Exclude reincorporate from non-BC-law state to BC-law state or vice versa;

Empirical Test

(1) Stock volatility:
Y: square root of the sum of squared daily stock returns over the year
Result: average stock volatility declines by about 2.3% among firms affected by a BC law

(2) Distress risk: not concerned

(3) Operating risk:
i) Y: Operating asset volatility: stock volatility * equity to operating assets ratio
Result: declines by about 1.5%
ii) Y: Cash flow volatility: annual std of quarterly ratio of cash flow to assets
Result: declines by about 0.28% but not significant

(3) Financial risk:
Y: Ln(cash)
Result: increase by 12.1 log points, or about 13% but not significant

Replication Process

Data Download

(1) Stock Volatility: from calculation of daily return
daily return from WRDS – Home - Get Data – CRSP - Annual Update - Stock / Security Files - Daily Stock File

Step 1: Choose your date range: 1976-01-01 to 2006-12-31
Step 2: Apply your company codes: Permanent Security Number (permno); Search the entire database
Step 3: Choose query variables: SIC Code (siccd), Share Code (shrcd), Returns (ret), Cusip (cusip)
Step 4: Select query output: comma-delimited text (*.csv); zip (*.zip); YYYY-MM-DD

(2) Operating asset volatility: Stock volatility * [E / (V-C)]
where [E / (V-C)] from Compustat using *(csho * prcc_f) / [lt + (csho * prcc_f) - ch]*
Cash flow volatility: annual standard deviation of firms' quarterly ratio of cash flow to assets
where Cash flow/Assets from Compustat using $(oiadp_t - accruals_t)/at_{t-1}$, where $accruals_t = (act_t - act_{t-1}) - (che_t - che_{t-1}) - (lct_t - lct_{t-1}) + (dlc_t - dlc_{t-1}) - dp_t$

Step 1: Choose your date range: 1976-01-01 to 2006-12-31
Step 2: Apply your company codes: Global Company Key (gvkey); Search the entire database
Step 3: Choose query variables: State/Province (state), Assets - Total (at), Liabilities - Total (lt),

Cash and Short-Term Investments (che), Price Close - Annual - Fiscal (prcc_f), Common/Ordinary Equity - Total (ceq), Sales/Turnover (Net) (sale), Current State/Province of Incorporation Code (incorp), Global Company Key (gvkey), Company Name (conm), Ticker Symbol (tic), Common Shares Outstanding (csho), Current Assets - Total (act), Current Liabilities - Total (lct), Debt in Current Liabilities - Total (dlc), Depreciation and Amortization (dp)
Step 4: Select query output: comma-delimited text (*.csv); zip (*.zip); YYYY-MM-DD

(3) Link: CRSP/Compustat Merged Database - Linking Table
Step 1: Apply your company codes: lpermno; Search the entire database
Step 2: Linking Options: LC, LU, LS
Step 3: Choose query variables: Standard and Poor\'\'s Identifier (gvkey), Primary Link Marker (linkprim), Link Type Codd (linktype), Historical CRSP PERMCO Link to COMPUSTAT Record (lpermco), Historical CRSP PERMNO Link to COMPUSTAT Record (lpermno), Ticker Symbol (tic), CUSIP (cusip)
Step 4: Select query output: comma-delimited text (*.csv); zip (*.zip); YYYY-MM-DD

Result

	(1)	(2)	(3)	(4)
VARIABLES	volatility	operating_asset_volatility	cashflow_volatility	ln_cash
bc_law_dummy	-0.030*	-0.089	-0.647*	0.050**
	(0.015)	(0.060)	(0.352)	(0.023)
Observations	123,016	119,979	177,773	205,118
R-squared	0.574	0.074	0.102	0.832
Firm-Fixed Effects	Yes	Yes	Yes	Yes
State-Year-Fixed Effects	Yes	Yes	Yes	Yes
Industry-Year-Fixed Effects	Yes	Yes	Yes	Yes
Cluster	State-of-Incorp	State-of-Incorp	State-of-Incorp	State-of-Incorp
Adj. R-squared	0.514	-0.0580	-0.0136	0.812
Robust standard errors in parentheses				
*** p<0.01, ** p<0.05, * p<0.1				

Difference

1. Regression Coefficients
The signs are consistent (both negative), but the absolute magnitudes are slightly larger.
2. Standard Errors
The standard errors in the replication are slightly higher. For instance, for Stock Volatility, the standard error is 0.008 in the paper and 0.015 in the replication.
3. Sample Size (Observations)
The sample size is slightly smaller in the replication (123,016) compared to the original paper.

4. Fixed Effects (Firm, State-Year, Industry-Year)
All types of fixed effects included match the original paper's specification.

Possible Reason

1. Differences in Data Selection
The paper used 'ch' for cash flows. I used 'che' because I think cash equivalent might be a better indicator of 'play' safe.
2. Differences in Sample Screening Criteria
Although efforts were made to exclude financial firms, foreign-incorporated firms, and firm-years with missing or negative assets/sales, there may still be minor inconsistencies compared to the exact filters used by the original authors.