Firm Risk and Proxy Fights: Evidence from SOX

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Abstract

The Sarbanes Oxley Act of 2002 (SOX) is documented to curb executive risk-taking and firm risk. Utilizing SOX as an exogenous shock on firm risk, we find that proxy fight threats are positively related to a firm's total risk and idiosyncratic risk. Specifically, although firm risk generally decreases post-SOX, high proxy fight threats mitigate this change in firm risk. We also find that although firms adopt more conservative policies such as decreasing their leverage and payout post-SOX, these changes are mitigated by proxy fight threats. In sum, our findings indicate that proxy fights act as an external disciplinary mechanism, encourage executive risk-taking, and increase firm risk.

Keywords: Proxy fight threat, Total risk, Idiosyncratic risk, Sarbanes Oxley Act, Quasi-natural experiments

JEL Classification Codes: C9, G32, G38, M48

1. Introduction

Shareholder control and corporate governance literature has long been discussing the role of proxy fights and their effect in alleviating agency conflicts created by the separation of ownership and management in public companies. The 1992 proxy reform reduced the cost of activist shareholders during proxy fights and significantly increased the frequency and intensity of activist activities (Mulherin & Poulsen, 1998). Quite a few studies have examined the role of proxy fights in corporate governance and the value of this mechanism. Brav, Jiang, Partnoy, and Thomas (2008) and Klein and Zur (2009) show that proxy fights or threats of proxy fights are a popular tool utilized by active investors (e.g. hedge funds) when management is unwilling to comply with their demands. Recent studies by Fos (2017) and Huang, Jain, and Torna (2018) show that the counterparty (management) may also attempt to value the severity of proxy fight threats and possible outcomes, and make strategic corporate changes accordingly to mitigate the chance of being targeted. Fos (2017) shows that firms in anticipation of proxy fights tend to increase leverages and payouts while decreasing cash reserves. These studies generally point to the fact that external proxy fight threats make it less likely for management to enjoy a "quiet life," and more likely to leverage up and encourage risk-taking.

However, the disciplinary and beneficial role of proxy fights is not universally agreed upon. There is limited research directly testing firm risk and proxy fight. Further, several studies questioned the effectiveness of proxy fights. Pound (1988) finds that system-wide problems in proxy solicitations reduce the effectiveness of proxy fights as a means to challenge management and gain corporate control. Ikenberry and Lakonishok (1993) and Klein and Zur (2009) show that policy changes after proxy fights do not always improve the operation performance of target companies.

A possible reason that causes the divergence in the proxy fight effectiveness is the specification challenge to establish a causal relation between proxy fight threats, firm risk, and the subsequent corporate policy changes. For example, measures predicting proxy fight threats may themselves affect the outcomes of proxy fights or coincide with the overall industry or market trend that shifts the corporate policy. Similar issues have been widely seen in corporate finance and operation research, and require either a specification remedy or the theoretical modeling in addressing such issues (see, for example, Bansal, Joseph, Ma, & Wintoki, 2016, Ma, Dewally, & Huang, 2017, and Ma & Mallik, 2016). To overcome this issue, in this current research, we exploit the 2002 Sarbanes-Oxley Act as a quasi-natural experiment, around which the average corporate governance environment of U.S. public companies

shifts towards conservative and less risk-taking, which is in a direction that is normally the opposite of demands pursued by activists. By studying the proxy fight threats and the subsequent policy changes before and after the SOX implementation, we aim to explore how firms targeted by near future proxy fights shift their corporate risk-taking activities during a period of systematically conservative corporate strategies.

The Sarbanes-Oxley Act (SOX Act) was intended to improve the auditing of U.S. public companies and requires firms to increase the quality of their financial reporting and disclosures. On the one hand, the SOX Act has disciplined the internal control, helped to restore investors' faith in published financial statements, and assisted in preventing financial scandals such as those of the Enron and WorldCom era (e.g. Alexander et al., 2013, Cohen, et al., 2013, and FERF, 2005). However, the implementation of the SOX Act also receives criticism in its direct and indirect cost, one of which discourages the corporate risk-taking. For example, Kang, Liu, and Qi (2010) show that the investment to capital ratio declined for U.S. firms compared to a sample of U.K. firms after 2002. Albuquerque and Zhu (2017) show that U.S. firms reduced their R&D spending, increased cash holdings, and reduced leverages as well as experienced with declined stock return volatility during the post-SOX years. Thus, compared to the pre-SOX period, the overall trend of U.S. firms is to adopt more conservative corporate policies, such as reducing risk-taking investments and payouts, as well as increasing cash holdings.

The declining trend of firm risks and a more conservative corporate environment provides us with a setting to evaluate the relation between proxy fight threats, firm risks, and corporate policy changes. The reduced risk-taking following the SOX Act can be considered as a systematic exogenous shock, and we expect the risk environment change should be universal to firms with both high and low proxy fight threats. However, if firms with high threats exhibit less risk-taking reduction than those with low threats during the post-SOX period, we would be able to connect such difference in corporate management to a high likelihood of proxy fights. Thus, we expect that the disciplinary mechanism of proxy fights will impact corporate risk-taking and policy changes as follows.

H1: For firms with a high proxy fight likelihood, the overall firm risk will increase more (or decrease less) compared to those with a low proxy fight likelihood during the post-SOX period.

H2: For firms with a high proxy fight likelihood, corporate policies are shifted towards more aggressive investments and payout patterns compared to those with a low proxy fight likelihood during the post-SOX period.

Now we are in a position to preview our empirical results. First, consistent with Albuquerque and Zhu (2017), Bargeron, Lehn, and Zutter (2010), and Cohen, Dey, and Lys (2004), the SOX Act is significantly negatively related to the return volatility. This is the reduction in firm risk associated with the regulation change, serving our purpose of an exogenous shock. Further, following Fos (2017) and Huang et al. (2018), we estimate the proxy fight threat, and find that the decline of firm risk is at least partially mitigated by the impact of high proxy fight threats. Finally, even though SOX discourages corporate risk-taking, proxy fight threats force firms to adjust their corporate policies to the direction which is more likely in favor of activist shareholders. Specifically, proxy contest threats are associated with higher leverage and more payouts, which counters the undesirable effect of the SOX to shareholders.

This paper makes contributions to the literature on the extreme form of corporate governance—proxy fights. First, given the close relation between proxy fights and multiple corporate policies (e.g., leverage, cash reserves, investments, and payouts), it adds to our understanding of the effect of proxy fights by examining the relation between proxy fight threats and firm risk including the total risk and the idiosyncratic risk. Furthermore, relying on the SOX Act as an external regulatory shock to the firm's risk environment adds to our confidence that the positive relation between proxy contest threats and firm risk is not spurious but rather robust, suggesting the necessity to consider the specification challenge in the proxy contest literature.

The rest of this paper is structured as follows. Section 2 illustrates the sample and methodology. Section 3 discusses our empirical results. The study concludes in Section 4.

2. Research Design

2.1 Data

Our sample consists of all Compustat firm-year observations from 1992 to 2009, including both proxy fights (event) and non-proxy fights (non-event) observations. As for the proxy fights information, we extract data from the Thomson Financial's Proxy Contest database. We focus on proxy contests targeting publicly held U.S. companies for a short slate of directors or board control. Since the Execucomp database provides no CEO compensation data before 1992, we collect data on realized proxy contests (as a proxy for contest anticipation at $t+1$) from 1992 to 2009. Next, for each event and non-event observations, we require the availability of stock price information, financial data, executive compensation information, and the ownership data from CRSP, Compustat, Execucomp, and Thomson

Financial's 13F databases, respectively. With these screening criteria and the removal of missing observations, our final sample consists of 12,602 firm-year observations. All continuous variables are winsorized at 1% and 99%. All dollar-denominated variables are inflation-adjusted to 2003 U.S. dollars using the Consumer Price Index. Finally, variable names and definitions are provided in Table 1.

Table 1. Variable definition

Variable	Definition
HIGH FIGHT THREAT	A dummy variable that takes the value of "1" if the probability of being a proxy fight target is above the median in our sample. The probability of a proxy contest is derived from the model in Table 3 of Fos (2017).
SOX	A dummy variable that takes the value of "1" if the observation is from the year 2002 through 2009.
CEO DELTA	Delta ($000s) is the dollar change in the executive's wealth for a 1% change in stock price. We follow Core and Guay (2001, 2002) and Rogers (2002) in calculating both Delta and Vega of CEO and CFO. LAG CEO DELTA=lagged log(1+CEO Delta).
CEO VEGA	Vega ($000s) is the dollar change in the executive's wealth for a 0.01 change in standard deviation of returns. LAG CEO VEGA=lagged log(1+CEO Vega).
Corporate policy	
LEVERAGE	The ratio of long-term debt plus debt in current liabilities divided by book value of total assets (which is total liabilities and stockholders' equity).
DEBT MATURITY	The ratio of debt in current liabilities divided by the sum of long-term debt plus debt in current liabilities.
CASH	The ratio of total cash and cash equivalents to total assets.
R&D	The ratio of research and development expenses scaled by book value of total assets.
CAPX	The ratio of the capital expenditures less the sale of PP&E divided by book value of total assets.
DIVIDENDS	The ratio of cash dividends (from Statement of Cash Flows) divided by income before extraordinary items adjusted for common stock equivalents.
REPURCHASE RATIO	Skinner (2008) repurchase measure.
Capital market variables	
EXCESS RETURN	One-year cumulative excess return over the market return.
TOTAL RISK	The natural logarithm of the annualized variance of daily returns over the fiscal year.
NONSYSTEMATIC RISK	The natural logarithm of the annualized variance of the residuals from the market model
LAG AVG SPREAD	The quoted percentage spread, defined as the yearly average (using daily data) of (Ask-Bid)/(0.5Ask+0.5Bid)
LAG AMIHUD	Amihud (2002) illiquidity measure.
Product market variables	
SALE GROWTH	The logarithm of one-year sales growth.
Other firm characteristics	
COMPUSTAT AGE	The number of years since the first appearance on COMPUSTAT.
LNAT	The logarithm of book value of asset.
LNMV	The logarithm of market capitalization.
ROA	Operating income before depreciation to assets.
CF	Net income plus depreciation and ammortization.
CASH HOLDING	Cash and cash equivalence.
GPM	Gross profit margin.
B2M	The book value of assets to the market value of assets.
INST HOLDING	The arithmetic mean of the quarterly institutional ownership in a given year obtained from Thomson Reuter 13-F database.
LAG DIV PAYER DUM	A dummy variable that takes the value of "1" if a firm is a dividend payer.

2.2 Models

2.2.1 Estimation of Proxy Fight Threats

To study the corporate policy changes in anticipation of a proxy fight threat, we first allocate the likelihood of a firm being targeted by dissidents, as proxy fight threats are not uniformly distributed to firms. Using the model similar to Fos (2017) and Huang et al. (2018), we adopt a probit regression to estimate the likelihood of a company receiving proxy fights based on a set of firm and industry characteristics. Then we calculated the fitted value (the estimated proxy fight threat) of each firm-year in our sample based on the estimates. The following Model (1) shows the first step in our approach, i.e., the estimation of the determinants of proxy contest occurrences, where q_t is the year fixed effects.

$$\begin{aligned}\Pr(Proxy\ Fight_{i,t} = 1) &= \beta_0 + \beta_1 Illiquidity_{i,t-1} + \beta_2 Industry\ Contest\ Intensity_{i,t} + \beta_3 \frac{M}{B}_{i,t-1} + \beta_4 ROA_{i,t-1} \\ &+ \beta_5 Sales\ Growth_{i,t-1} + \beta_6 Excess\ Return_{i,t-1} + \beta_7 Institutional\ Ownership_{i,t-1} \\ &+ \beta_8 Age_{i,t-1} + \beta_9 Log(Assets)_{i,t-1} + q_t + u_{i,t}\end{aligned}$$

Model (1)

In Model 1, *Proxy Fight* is a dummy that equals one when a firm is targeted in a realized contest in a given year. The proxy fight dummy is then regressed on the *Amihud Illiquidity*, *Industry Contest Intensity*, *M/B*, *ROA*, *Sales Growth*, *Excess Cumulative Returns*, *Institutional Ownership Ratio*, *Age*, *Log(Assets)*, and year dummies. We are motivated by existing studies in the corporate governance literature when choosing the explanatory variables. For example, Duvall and Austin (1965) and DeAngelo (1988) focus on the accounting performance (e.g., profitability) and stock market performance (e.g., pre-contest stock returns) and find that contest targets relative to industry peers experience below-market accounting returns prior to the contest. Additionally, Fos and Kahn (2015) and Fos (2017) report that firm growth prospects, institutional ownership, stock illiquidity, and book-to-market ratios predict future proxy contests. Furthermore, a company is more likely to be targeted in a proxy fight if it is smaller in size and more mature.

Among the independent variables, *ROA* and *Sales Growth* account for operating performance and growth prospects, while *Illiquidity*, *M/B* and *Excess Cumulative Return* proxy for stock-market performance and potential for undervaluation. Furthermore, the variables *Institutional Ownership*, *Age*, and *Log(Assets)* proxy for the level of institutional ownership, firm age, and firm size, respectively.

Also, we include *Industry Contest Intensity* to measure the potential spillover effect of the industry proxy fight environment. It is defined as the number of proxy fights in an industry-year divided by the total number of firms in Compustat for that industry-year (with the industry being defined based on the Fama-French 48 industry classification). Contagion effects have been previously documented in corporate finance topics such as stock splits, share repurchases, and dividends reductions (Gleason et al., 2008; Impson, 2005; Tawatnuntachai & D'Mello, 2002). Indeed, the intensity of proxy contests is largely related to changes in the industry and regulatory environments (e.g., proxy reforms of the 1990s and proxy access rules of the 2000s), and a set of common risks and opportunities shared by competitors in the same line of business. Thus, it is possible that industry-level contest intensity increases the likelihood of dissidents initiating a proxy fight. As a result, we expect to observe a positive association between the industry contest intensity and the likelihood of a proxy contest for firms in the same industry.

We then calculate the expected proxy fight likelihood using the estimated marginal effects from the regression of Model 1. We calculate the fitted value of the proxy fight probability of each of our 12,602 firm-year observations and then partition the sample into bi-groups of high versus low proxy fight likelihood based on the median fitted value in order to form a difference-in-difference specification. We then define a *High Fight Threat* dummy variable equaling one if the estimated likelihood of being a contest target is above the estimated median, while equaling zero if the estimated likelihood is below the estimated median. The *High Fight Threat* variable is then used as an explanatory variable in the analysis of policy and corporate risk changes around the SOX act. The summary statistics of the *High Fight Threat* variable is reported in Table 2.

2.2.2 Estimation of Corporate Risk-Taking and Policy Change around the SOX Act

We use the following specifications to investigate the risk-taking and corporate policy change in anticipation of a proxy fight, pre- and post-SOX Act, where v_i and q_t are industry and year fixed effects, respectively.

$$\begin{aligned} Firm\ Risk_{i,t} = {} & \beta_0 + \beta_1 SOX_t + \beta_2 SOX * High\ Fight\ Threat_{i,t} + \beta_3 High\ Fight\ Threat_{i,t} + \beta_4 CEO\ Delta_{i,t} \\ & + \beta_5 CEO\ Vega_{i,t} + \beta_6 Log(Market\ Value)_{i,t-1} + \beta_7 B/M_{i,t-1} \\ & + \beta_8 Excess\ Return_{i,t-1} + \beta_9 Institutional\ Ownership_{i,t-1} + \beta_{10} Amihud_{i,t-1} + \beta_{11} Spread_{i,t-1} \\ & + \beta_{12} Leverage_{i,t-1} + \beta_{13} Cash\ Holding_{i,t-1} + \beta_{14} R\&D_{i,t-1} + \beta_{15} Capex_{i,t-1} \\ & + \beta_{16} Dividend\ Dummy_{i,t-1} + \beta_{17} Repurchase_{i,t-1} + \beta_{17} ROA_{i,t-1} + \beta_{17} CashFlow_{i,t-1} \\ & + \beta_{17} Age_{i,t-1} + \beta_{17} Sales_{i,t-1} + v_i + q_t + \varepsilon_{i,t} \end{aligned}$$

Model (2)

$$\begin{aligned} \Delta CorporatePolicy_{i,t} = {} & \beta_0 + \beta_1 SOX_t + \beta_2 SOX * High\ Fight\ Threat_{i,t} + \beta_3 High\ Fight\ Threat_{i,t} + \beta_4 CEO\ Delta_{i,t} \\ & + \beta_5 CEO\ Vega_{i,t} + \beta_6 Log(Market\ Value)_{i,t-1} + \beta_7 B/M_{i,t-1} \\ & + \beta_8 Excess\ Return_{i,t-1} + \beta_9 Institutional\ Ownership_{i,t-1} + \beta_{10} Amihud_{i,t-1} + \beta_{11} Spread_{i,t-1} \\ & + \beta_{12} Leverage_{i,t-1} + \beta_{13} Cash\ Holding_{i,t-1} + \beta_{14} R\&D_{i,t-1} + \beta_{15} Capex_{i,t-1} \\ & + \beta_{16} Dividend\ Dummy_{i,t-1} + \beta_{17} Repurchase_{i,t-1} + \beta_{17} ROA_{i,t-1} + \beta_{17} CashFlow_{i,t-1} \\ & + \beta_{17} Age_{i,t-1} + \beta_{17} Sales_{i,t-1} + v_i + q_t + \varepsilon_{i,t} \end{aligned}$$

Model (3)

First, we include two dummy variables as our main variables of interest. *SOX* takes a value of one if the firm-year observation is post-SOX from 2002 through 2009, and zero otherwise. The *High Fight Threat* equals one if the estimated likelihood of a proxy fight is above the median from the probit regression of Model 1 discussed previously. These variables capture whether there is a significant decrease of risk-taking activities in the post-SOX years overall as suggested in the existing literature, and if in high anticipation of a proxy fight, companies are more likely to increase risk-taking activities as an effect of the disciplinary role of active investors. The interactive variable between the *SOX* and *High Fight Threat* further indicates how the potential disciplinary role of active investors might interact with the overall post-SOX trend of conservative management. If the proxy contest threat effectively disciplines the corporate governance and encourages risk-taking activities, we would expect the interactive term to be of the opposite sign of that of the *SOX* variable.

We use the first specification (Model 2) to establish the overall impact on corporate risks when firms are facing a high proxy fight threat. We use the annualized standard deviation of daily stock returns to proxy for the total risk level of the company, since an increased amount of risk-taking activities will likely increase the overall stock return volatility. We also present the analysis of the impact of a proxy fight threat on the idiosyncratic risks by retaining the error terms from regressing the total risk (total volatility) on the market model. The idiosyncratic risk measures the amount of stock volatility in response to the unique firm management style and policy changes rather than the systematic risk or overall market impact. Both the total and idiosyncratic volatilities have been used in measuring corporate risk-taking. For example, Bargeron, Lehn, and Zutter (2010), and Fos (2017) include the total stock return volatility as a proxy for the corporate risk-taking. Also, Vuolteenaho (2002) suggests that the idiosyncratic return volatility is related to the variance of cash flows. Moreover, Wei and Zhang (2006) show that the higher (idiosyncratic) return volatility of US firms is related to their increased earnings variability, which could be positively related to more corporate risk-taking activities.

We then analyze the potential channels that may be subject to the disciplinary effect of proxy contest threats using Model 3. We focus on three major corporate policy choices that are suggested in the existing literature since they are important to the corporate valuation and the investors' perception. Specifically, we investigate the capital structure policy (leverage); the payout and cash control policy (dividend payouts, the cash ratio, and share repurchases), and investment policies (R&D and Capital expenditures).

We focus on payout and cash control decisions since they determine the extent of flexibility available to management. The amount of free cash flow in the hands of management is often related to the agency problem in that management might pursue self-interested behaviors versus shareholder interests, which is a key issue commonly targeted by dissidents. For instance, Fos and Kahn (2015) and Fos (2017) find that proxy contest targets often decrease cash reserves by increasing dividend payments or share repurchases. Similarly, increases of leverage ratio significantly reduce the amount of free cash flow available to management, which limits their ability to pursue empire-building investments (Fos, 2017, and Jensen, 1986). Our choice of investment policies is motivated by the fact that firms are

more likely to increase risk-taking activities in response to a high proxy fight threat. For example, companies may engage in more high-risk investment (R&D) and reduce the amount of traditional and low-risk investments (capital expenditure). If proxy contest threats have the potential to serve as a disciplinary mechanism, we expect a significant impact of *High Fight Threat* and the interactive term in Model 3 during a period of declined risk-taking activities and conservative management post-SOX.

Summary statistics of the key variables of proxy threat, firm characteristics, CEO pay-performance sensitivity, and corporate policy changes are reported in Table 2. Specifically, the average firm size is 1,556.197 (in $million) spreading in a wide range of industries.

Table 2. Summary statistics

	N	Mean	StdDev	Q1	Median	Q3
FIGHT THREAT	11568	0.0055	0.0065	0.0011	0.0031	0.0076
CEO DELTA	12602	1083.87	11223.81	69.24	202.05	578.59
CEO VEGA	12602	147.11	382.47	0.00	42.17	137.31
Corporate policy						
LEVERAGE	12602	20.84	16.42	5.48	20.14	32.23
DEBT MATURITY	11097	21.10	27.36	1.55	9.58	29.33
CASH HOLDING	12602	0.09	0.11	0.02	0.05	0.13
R&D	12602	0.03	0.06	0.00	0.00	0.05
CAPX	12602	0.04	0.06	0.00	0.03	0.06
DIV PAYER DUM	12602	0.54	0.50	0.00	1.00	1.00
REPURCHASE RATIO	12600	23.45	234.33	0.00	0.00	19.39
Capital market variables						
TOTAL RISK	12602	1.11	0.11	1.04	1.07	1.13
SYSTEMATIC RISK	12602	0.15	0.11	0.08	0.13	0.19
NONSYSTEMATIC RISK	12602	1.09	0.10	1.03	1.06	1.11
Firm characteristics						
LNAT	12602	7.35	1.49	6.29	7.19	8.26
LNSALE	12597	7.33	1.54	6.31	7.24	8.32
ROA	12600	0.05	0.12	0.02	0.06	0.10

Table 2 presents summary statistics for the variables used in our analysis. See Table 1 for variable definition.

3. Empirical Analyses

3.1. Likelihood of Proxy Fight Threats

We begin by estimating the likelihood of proxy contests and report the estimates of the probit regression in Table 3. The dependent variable equals one if a proxy contest is realized and it is regressed on industry and firm-specific factors as described in Model 1.

Table 3. Predicting proxy fight threats

Dependent Variable	Pr(Contest)
AMIHUD ILLIQUIDITY	-0.0048***
	(-2.803)
INDUSTRY CONTEST INTENSITY	57.3442***
	(24.212)
M/B_{t-1}	-0.1412***
	(-4.393)
LAG ROA	-0.3221***
	(-3.100)
LAG SALES GROWTH	-0.0986
	(-1.406)
LAG EXCESS CUMULATIVE RETURN	-0.1521***
	(-2.895)
LAG INSITUTIONAL OWNERSHIP	0.2316***
	(2.599)
AGE	0.0054***
	(3.324)
LNAT	0.0016
	(0.124)
Constant	-3.0023***
	(-25.015)
Industry fixed effects	Yes
Year fixed effects	Yes
Observations	12,602
R-squared	0.166

Table 3 shows the results from a probit model estimating the likelihood of proxy contests. The dependent variable equals one if a proxy contest is realized and it is regressed on industry and firm-specific factors as described in Equation 1. All continuous measures are winsorized at the 1% and 99% levels. T-statistics are calculated using heteroscedasticity robust standard errors (in brackets). *, **, and *** represent significantly different from zero at the 0.10, 0.05, and 0.01 level (two-tailed), respectively. Variable definitions are provided in Table 1.

The result of the probit analysis suggests that firms are often targeted by dissidents in proxy contests because of their poor stock market performances (low *excess stock returns*) and low valuation ratios (*Market-to-Book*). Potential proxy contest targets are also subject to higher *institutional ownership*, which is consistent with the view that institutions and sophisticated investors are more likely to raise proxy proposals. Furthermore, firms with high stock liquidity (low *Amihud illiquidity*) attract proxy contests, because the high liquidity of stock market reduces transaction costs, which leads to a less costly proxy contest initiated by activists. Also, poor profitability (*ROA*), and older *firm age* are positively related to the high proxy contest probability. The probit model also confirms the spillover effect of proxy contests; firms in an industry with high proxy contest intensity are more likely to be targeted in the future. Overall, these findings are consistent with Fos (2017) and Huang et al. (2018).

We then calculate the predicted proxy contest probability for each of the firm-year observations in our sample. We create a dummy variable *High Fight Threat* to each observation. The variable takes the value of one if the predicted probability of being a proxy fight target is above the median in our sample, and zero otherwise. In the next sections, the *High Fight Threat* variable is our main explanatory variable of interest when analyzing the corporate risk-taking and policy changes in anticipation of proxy contests around the SOX Act.

3.2 Proxy Fight Threats, SOX, and Firm Risk Changes

In this section, we analyze the disciplinary effect of proxy contests to the overall corporate risk-taking activities around the 2002 SOX Act. We use the stock-based risk measures, both in the forms of the total return volatility and the idiosyncratic (residual) return volatility from regressing the total volatility on the market model.

Table 4. Firm risk and proxy fight threats

DEPENDENT VARIABLES	TOTAL RISK		IDIOSYNCRATIC RISK	
	(1)	(2)	(3)	(4)
SOX	-0.0281***	-0.0297***	-0.0209***	-0.0278***
	(0.007)	(0.007)	(0.007)	(0.007)
HIGH FIGHT THREAT*SOX		0.0103***		0.0069***
		(0.002)		(0.002)
HIGH FIGHT THREAT		0.0059***		0.0044*
		(0.002)		(0.002)
LAG CEO DELTA	0.0000	0.0012	-0.0011	0.0001
	(0.001)	(0.001)	(0.001)	(0.001)
LAG CEO VEGA	0.0005	0.0014**	0.0003	0.0014***
	(0.001)	(0.001)	(0.001)	(0.000)
LAG LNMV	-0.0018	-0.0036	-0.0088***	-0.0068***
	(0.002)	(0.002)	(0.002)	(0.002)
LAG B2M	0.7334***	0.7294***	0.6354***	0.6817***
	(0.198)	(0.196)	(0.177)	(0.189)
LAG EXCESS RETURN	0.0064	0.0101***	-0.0022	0.0003
	(0.004)	(0.004)	(0.004)	(0.003)
INST TOTAL HOLDING	-0.0000	0.0000	-0.0001***	-0.0001
	(0.000)	(0.000)	(0.000)	(0.000)
LAG AMIHUD	-0.0027	-0.0028	-0.0041**	-0.0025
	(0.002)	(0.002)	(0.002)	(0.002)
LAG AVG SPREAD	3.0425***	3.1287***	2.2782***	2.7551***
	(0.273)	(0.227)	(0.221)	(0.206)
LAG LEVERAGE	0.0001	0.0001	0.0001	0.0001
	(0.000)	(0.000)	(0.000)	(0.000)
LAG CASH HODLING	0.0329***	0.0207*	0.0265**	0.0203*
	(0.012)	(0.012)	(0.011)	(0.010)
LAG R&D	0.1344***	0.1399***	0.1333***	0.1196***
	(0.035)	(0.035)	(0.033)	(0.034)
LAG CAPX	0.0192	0.0277	0.0367*	0.0326
	(0.023)	(0.025)	(0.022)	(0.024)
LAG DIVIDEND	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.000)	(0.000)	(0.000)	(0.000)
LAG REPURCHASE	-0.0001***	-0.0000***	-0.0000***	-0.0000*
	(0.000)	(0.000)	(0.000)	(0.000)
LAG GPM	0.0000	0.0000	0.0000	0.0000
	(0.000)	(0.000)	(0.000)	(0.000)
LAG ROA	-0.0305	0.0263	-0.0169	0.0308
	(0.052)	(0.062)	(0.047)	(0.062)
LAG CF	0.0056	-0.0339	-0.0086	-0.0388
	(0.056)	(0.063)	(0.053)	(0.062)
COMPUSTAT AGE	-0.0007***	-0.0006***	-0.0007***	-0.0006***
	(0.000)	(0.000)	(0.000)	(0.000)

LAG LNSALE	-0.0013	0.0005	0.0009	0.0022
	(0.002)	(0.002)	(0.001)	(0.002)
Constant	0.9968***	0.9833***	1.0337***	1.0088***
	(0.013)	(0.014)	(0.012)	(0.013)
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	12,602	11,477	12,602	11,477
R-squared	0.4485	0.4292	0.3939	0.4125

Table 4 shows the results from OLS regressions of proxy fight threats on firm total/idiosyncratic risk. All continuous measures are winsorized at the 1% and 99% levels. T-statistics are calculated using heteroscedasticity robust standard errors (in brackets). *, **, and *** represent significantly different from zero at the 0.10, 0.05, and 0.01 level (two-tailed), respectively. Variable definitions are provided in Table 1.

We first regress the total volatility and the idiosyncratic volatility on the dummy variable of SOX alone in the first and third specifications in Table 4 to establish the overall risk-taking trend of US firms around the 2002 SOX Act. Consistent with Albuquerque and Zhu (2017), Bargeron, Lehn, and Zutter (2010), and Cohen, Dey, and Lys (2013), the SOX Act variable is significantly negatively related to the return volatility. The total and idiosyncratic volatility post-SOX declined by 2.81% and 2.09%, respectively. As suggested by prior research, such decline of risk-taking is considered as an indirect cost of the SOX Act which discourages investment projects as managers and boards fear tightened internal controls or any slightest mistake (Michael, 2003).

We then include the *High Fight Threat* and the interactive variable in the second and the fourth specifications in Table 4. First, we find significant support for the disciplinary effect that firm with high proxy contest will increase their corporate risk-taking. The coefficient of *High Fight Threat* is 0.0059 and 0.0044, showing that during pre-SOX years (when *SOX*=0), the total and idiosyncratic volatility of high threat companies both increase significantly when companies face high proxy contest threats. Second, we show that during the post-SOX period, the disciplinary role of proxy fight threats further encourages the corporate risk-taking. The coefficients of the interactive term of *SOX* and *High Fight Threat* is significantly positive at 0.0103 and 0.0069 for the two risk measures. Thus, the summed coefficients of the proxy contest threats during the post-SOX era are 0.0162 (=0.0103+0.0059) and 0.0113 (=0.0069+0.0044). The significant positive impact after SOX shows that, in response to the overall decline of the corporate risk-taking affected by the exogenous regulatory shock, firms with a high proxy contest threat increase their risk-taking activities when potentially targeted by active investors. This, at least partially, presents the causal relation between the proxy contest threats and the change of firm risks.

In another way, for firms facing high proxy threats, the discouragement of risk-taking during the post-SOX year are less in magnitude on the two risk measures comparing to low-threat firms. Thus, activists play an alternative governance role that partially substitutes the tightened internal control; the disciplinary effect of proxy contests thus counters the negative impact of SOX on the corporate risk-taking.

3.3. Proxy Fight Threats, SOX, and Corporate Policy Changes

In this section, we evaluate whether firms would change their payout, leverage, and investment decisions when facing high proxy contest threats to prevent a costly and distracting proxy fight. Using Model 3, we calculate the change of leverage ratio, cash ratio, R&D spending, capital expenditures, dividend payouts, and share repurchases before and after the event year and regress the changes on the *High Fight Threat* and *SOX* as well as firm characteristics and lagged policy of *t-1*. The results are reported in Table 5.

Table 5. Corporate policies and proxy fight threats

DEPENDENT VARIABLES	LEVERAGE	CASH	R&D	CAPX	DIVIDENDS	REPURCHASE
	(1)	(2)	(3)	(4)	(5)	(6)
SOX	-3.2263***	0.0276***	-0.0102***	0.0004	-1.6914	-17.1694***
	(0.674)	(0.005)	(0.003)	(0.002)	(3.119)	(3.191)
HIGH FIGHT THREAT*SOX	1.8389***	-0.0028	-0.0010	-0.0003	2.0671*	2.4679*
	(0.274)	(0.002)	(0.001)	(0.001)	(1.241)	(1.486)
HIGHT FIGHT THREAT	2.1708***	-0.0021	0.0007	-0.0008	0.5806	2.7820
	(0.380)	(0.003)	(0.002)	(0.001)	(1.777)	(2.587)
LAG CEO DELTA	-0.3024***	0.0013**	0.0013***	-0.0002	-2.1596***	-0.8776**
	(0.082)	(0.001)	(0.000)	(0.000)	(0.372)	(0.389)
LAG CEO VEGA	0.1825***	-0.0007	-0.0012***	0.0006***	1.2902***	0.7694**
	(0.061)	(0.000)	(0.000)	(0.000)	(0.316)	(0.329)
LAG LNMV	0.3961*	-0.0010	-0.0018**	0.0021***	4.5047***	0.8705
	(0.209)	(0.001)	(0.001)	(0.001)	(0.758)	(0.813)
LAG B2M	67.4463***	-0.0641	-0.0365	0.0381	-97.3095***	-132.2963***
	(10.990)	(0.071)	(0.052)	(0.044)	(23.355)	(41.695)
LAG EXCESS RETURN	-0.7278**	-0.0032	0.0095***	-0.0053***	-3.2097***	-3.5936***
	(0.295)	(0.002)	(0.001)	(0.001)	(1.032)	(1.147)
INST TOTAL HOLDING	0.0079	-0.0001*	0.0000	0.0000	-0.1076***	0.0277
	(0.006)	(0.000)	(0.000)	(0.000)	(0.025)	(0.025)
LAG AMIHUD	0.0475	-0.0027**	-0.0012*	-0.0009	2.4495***	-1.1621*
	(0.176)	(0.001)	(0.001)	(0.001)	(0.596)	(0.635)
LAG AVG SPREAD	-12.9328	0.2960***	-0.0793**	0.1239***	-205.2189***	-212.0786***
	(14.421)	(0.073)	(0.037)	(0.039)	(31.680)	(37.750)
LAG LEVERAGE	0.8062***	-0.0003***	-0.0002***	-0.0001*	-0.0484*	-0.2798***
	(0.009)	(0.000)	(0.000)	(0.000)	(0.028)	(0.030)
LAG CASH HODLING	-4.7725***	0.6240***	0.0072	0.0101*	-4.8360	11.1781**
	(1.157)	(0.014)	(0.005)	(0.006)	(4.627)	(5.668)
LAG R&D	-5.8138**	0.1491***	-0.0246***	0.7896***	-32.6549***	-45.2505***
	(2.499)	(0.022)	(0.009)	(0.021)	(6.714)	(8.821)
LAG CAPX	4.8568**	-0.0564***	0.5108***	-0.0416***	-11.5815	-53.8495***
	(1.960)	(0.014)	(0.015)	(0.007)	(7.944)	(7.958)
LAG DIVIDEND	-0.0020	-0.0000	-0.0000**	-0.0000	0.1897***	-0.0355***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.019)	(0.012)
LAG REPURCHASE	0.0038**	-0.0000	0.0000	-0.0000	-0.0238***	0.2440***
	(0.002)	(0.000)	(0.000)	(0.000)	(0.009)	(0.015)
LAG GPM	-0.0015***	0.0000	0.0000***	0.0000*	-0.0116*	-0.0020**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)	(0.001)
LAG ROA	-7.1736*	-0.0269	-0.0280*	0.0041	-11.7455	2.5502

	(4.011)	(0.040)	(0.016)	(0.021)	(10.205)	(11.022)
LAG CF	7.0134*	0.0392	0.0347**	0.0227	6.9304	2.9813
	(3.907)	(0.039)	(0.016)	(0.020)	(8.573)	(9.904)
COMPUSTAT AGE	-0.0008	-0.0001	-0.0002***	-0.0001**	0.3772***	-0.1354***
	(0.008)	(0.000)	(0.000)	(0.000)	(0.040)	(0.039)
LAG LNSALE	-0.1636	-0.0025**	-0.0022***	-0.0029***	-0.7334	0.0128
	(0.141)	(0.001)	(0.001)	(0.001)	(0.526)	(0.558)
Constant	4.5183***	0.0054	0.0272***	-0.0062	43.5717***	14.7760**
	(1.423)	(0.010)	(0.005)	(0.005)	(5.551)	(6.000)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,478	11,478	11,478	11,478	11,478	11,478
R-squared	0.7258	0.5691	0.3599	0.7531	0.1204	0.0989

Table 5 shows the results from OLS regressions of proxy fight threats on corporate policies. All continuous measures are winsorized at the 1% and 99% levels. T-statistics are calculated using heteroscedasticity robust standard errors (in brackets). *, **, and *** represent significantly different from zero at the 0.10, 0.05, and 0.01 level (two-tailed), respectively. Variable definitions are provided in Table 1.

First, we find that the post-SOX era is associated with decreased leverage (-3.22) and share repurchases (-17.17), decreased risky investments of R&D spending (-0.01), and increased cash ratio (0.027). These change after SOX are largely consistent with prior literature showing that the SOX Act discourage risk-taking through the channels of reduced investment activities, increased cash holdings, and reduced leverage. Thus, the overall trend from the pre-SOX to post-SOX periods is towards conservatism via declined investments and increased cash holding.

Second, we find that the coefficients of the *High Fight Threat* are significantly positive in increasing firm leverage ratio (2.17) during pre-SOX years, but other firm policies are not significantly affected by the high proxy threat before 2002. More important is the interactive term between the *SOX* and *High Fight Threat* in analyzing the disciplinary role of proxy contest during the post-SOX period. We find significant changes in at least half of our tested corporate policies. Under a high possibility of future proxy contests, firms increase their leverages, pay more dividends, and conduct more share repurchases. These policy changes reflect an improved use of the cash reserves and are largely along the direction favored by active investors, fitting well with other findings in the literature (Berger et al., 1997, La Porta et al., 2000, and Safieddine & Titman, 1999).

Also, we find that in all of the six regressions presented in Table 5, the direction of the impact from the SOX Act and the disciplinary role of proxy contest threats post-SOX (the interactive term) are always the opposite. This finding suggests that the proxy contest and activists play a substitute role of the internal control in corporate governance and can mitigate the unfavorable impact of SOX. Previously, concerns have been raised in questioning the adverse effect of the SOX Act on corporate policies (Greenspan, 2003, and Michaels, 2003) in discouraging corporate risk-taking. We show that, at least to companies facing relatively high proxy contest threats, the disciplinary role of proxy threats promotes management to increase payouts and adopt a more efficient use of their resources.

Overall, our findings suggest that proxy threats force firms to adjust firm policies to the direction in favor of at least some shareholders, i.e., active investors, during the exogenous regulation shock of the post-SOX era. Our results are consistent with the view that stronger corporate governance and shareholder control are associated with increased leverage and payouts which effectively lower the potential for the self-interest seeking executives to take advantage of shareholders' value (Dodd & Warner, 1983, Faleye, 2004, Garvey & Hanka, 1999, and Safieddine & Titman, 1999).

4. Summary and Conclusion

Corporate governance literature has made great efforts in examining the disciplinary effects of proxy contests on corporate policies and firm performance. Given the importance of proxy contests as an extreme form of corporate governance mechanism, we find that proxy fight threats are positively related to a firm's total risk and idiosyncratic risk. To establish this relation, we rely on the Sarbanes Oxley Act of 2002, which provides an exogenous shock on

firm risk. We find that although firm risk generally decreases post-SOX, high proxy fight threats mitigate this change in firm risk. We show that firms adopt more conservative policies such as decreasing their leverage and payout post-SOX. However, these conservative corporate policy changes are also mitigated by proxy fight threats.

These findings enhance our understanding of the disciplinary role of proxy contests. While firms generally adopt shareholder-friendly policies facing proxy contest threats, we find that these changes lead to a significant increase in firm risk, measured by both total firm and idiosyncratic risk. This demonstrates that proxy contests have an effective disciplinary effect, which spurs risk-averse managers to take on more risk and adopt value-enhancing corporate policies. More importantly, we take into consideration the challenges in specifications by taking advantage of SOX as a quasi-natural experiment. This adds to our confidence that the positive relation between proxy contest threats and firm risk is not spurious but rather robust, suggesting the necessity to consider the specification challenge in the proxy contest literature.

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