The Litigation Environment of a Firm and its Impact on Financial Policy*

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Abstract

Theory suggests that management may be able to increase firm value through the strategic use of debt when facing contingent liabilities. This paper examines whether managers strategically use financial policy when facing the risk of one such liability - litigation claims. I find that greater litigation exposure leads firms to choose higher leverage. I show that this leverage increase is brought on by an active decision to repurchase shares. These repurchases appear to be financed with a combination of excess cash and short term debt as they coincide with a significant decrease in cash holdings and an increase in short term liabilities. These firms also increase their use of operating leases, which, due to their priority in bankruptcy, have similar characteristics to secured debt. Finally, the effects seem to be stronger for firms with a higher probability of bankruptcy. These results run counter to anecdotal suggestions that firms may adjust financial policy to build a war chest in anticipation of litigation and they suggest that firms use capital structure strategically to increase shareholder value.

1 Introduction

One of the fundamental questions in corporate finance is how capital structure impacts firm value. In a frictionless world free of taxes and bankruptcy, Modigliani and Miller (1958) famously demonstrated the irrelevancy of the firm's debt and equity choice. However, when considering bankruptcy costs, the result is less obvious.[1] The classic interpretation suggests that, when facing costly bankruptcy, firms will use less debt.

Other research, beginning with Scott (1977), demonstrates how firms can use debt strategically to advantage one claimant at the expense of another and, in the process, increase overall firm value. The idea is relatively straightforward. The value of liabilities depends in part on their priority in bankruptcy. If a firm can issue new securities that are senior in bankruptcy to existing claims, it can reduce the amount available to those existing claims in the event of bankruptcy, thereby transferring value to the firm's equity holders.[2] Creditors understand this and most liabilities are protected from such action through covenants.[3] However, certain contingent liabilities, such as future litigation claims, may have a positive expected value while having no official claimant who could demand compensation for a reduction in the claim's value.[4] As a result, firms may be able to appropriate part of the value of these liabilities by increasing the amount of senior claims in the capital structure.[5]

In this paper, I empirically examine whether firms use their capital structure strategically to increase firm value in the face of one such claim - litigation. As litigation exposure is an undeniable reality for firms in today's marketplace, this appears to be an ideal setting in which to examine this issue. A firm exposed to major civil litigation can find itself spending millions in legal fees, settlements, and/or judgments. In extreme cases, large judgments have the potential to force firms into bankruptcy. I ask whether a firm's management takes this risk of litigation into account when

[1] Stiglitz (1969) shows that if investors can borrow at the same rate as the firm and purchase equity (using the equity as collateral on the debt) then the irrelevancy of capital structure still applies even in the face of bankruptcy.

[2] This would not hold if the firm was forced to compensate existing creditors for the reduction in their priority.

[3] In the case of trade credit this protection also occurs through the Uniform Fraudulent Transfer Act.

[4] These types of liabilities include, in addition to future litigation claims, certain types of taxes, future wages, and bankruptcy costs.

[5] Spier and Sykes (1998) and Bronars and Deere (1991) show theoretical results consistent with this idea, modeling specific cases in which using more debt can reduce the value of claims of litigants and unions, respectively.

setting financial policy. Specifically, I examine how firms react when shocks to the legal environment change the value of future litigation claims.

There are several ways in which a firm could adjust financial policy in response to changes in its litigation exposure.[6] On one hand, a firm may choose to alter its capital structure strategically to reduce the value of litigation claims in bankruptcy. As Scott (1977) and Spier and Sykes (1998) point out, a firm may use both secured and unsecured debt to reduce the value of litigation claims as these both take priority in bankruptcy.[7] This increase in debt could be combined with an increase in payout either through dividends or share repurchases.[8] However, it is also possible that firms will do the opposite. Specifically, firms may increase their cash holdings (potentially through a reduction in dividends and/or investment) in order to build a "war chest" to defend against civil litigation. This strategy can also reduce the expected value of the litigation claim, but through a reduction in the probability of successful litigation rather than a reduction in bankruptcy priority.

There are several challenges in examining the effect of litigation on a firms' financial policy. First, there is likely to be a significant unobservable firm-specific component in future litigation claims (because of firm policies, products, etc.), making it difficult to control for other factors that also play a role in financial policy decisions. As a result, I focus on shocks to the expected value of these litigation claims and examine how firms respond to these shocks. The second empirical difficulty is that, while certain industries and firms face a greater risk of litigation than others, we only observe litigation events that have happened, not the expected value of all claims that will occur in the future.[9] To address this issue, I proxy for the litigation environment of the firm (the present value of these future claims) by using a sample of actual lawsuits.

First, I examine how a firm responds when new lawsuits are filed. I find evidence that firms increase

[6]The expected firm response may have broader implications for issues such as product pricing ex-ante because firms would not be able to commit to not respond to increased litigation risk.

[7]Unsecured debt in the sense of collateral is still "secure" in the sense that it is protected from unlawful conveyance under Uniform Fraudulent Transfer Act and may still have priority equal to or better than litigation claims.

[8]Growing the firm through the issuance of debt and subsequent investment in positive NPV projects will not necessarily reduce the value of future litigation claims as the amount available to those litigants in bankruptcy may actually increase. On the other hand, the firm could simply shrink, liquidating assets and paying out the proceeds without issuing new debt. This may or may not be associated with a change in capital structure.

[9]In fact, we only observe a sample of claims that have already occurred as not all litigation events have to be reported by the firms.

leverage and payout while holding less cash and using more short term debt (trade credit). This is consistent with the idea that firms are using capital structure strategically to reduce the value of litigation claims. However, there are difficulties with examining the impact of litigation on the firm being sued. The first is related to timing. There are legal impediments that may prevent firms from significantly adjusting their capital structure after the litigation process has actually begun (in the framework described above, this is the point where an actual claimant exists and may have legal protection in terms of bankruptcy priority). The second issue is the endogeneity with respect to litigation and financial policy. The probability that a firm is sued may be related to the overall financial policy decisions of the firm. There are several reasons why this may be true. Poor firm performance may increase the probability of a lawsuit (for example if product quality suffers due to cost-cutting measures). This same poor performance may also have a significant impact on the financial policy decisions of the firm. In other cases, the financial policy decisions of the firm may actually be the cause of the litigation (a securities class-action lawsuit for example). In either case, this endogeneity makes using actual litigation against the firm problematic when looking at financial policy responses.

In order to mitigate this problem, I take advantage of exogenous variation in the probability of litigation by proxying for litigation exposure using the number of litigation events within that firm's industry over time. Put simply, industry trends in litigation may tell us about the risk of a lawsuit that a given firm faces even though those industry trends are unrelated to the specific financial policy decisions of a particular firm (except through the litigation channel). For example, a product liability suit against firm A may signal a shift in the litigation environment. Due to legal trends, judicial precedent, or even the success of plaintiffs attorneys, this lawsuit may increase the probability that firm B is ultimately sued, even though the change in the probability of a lawsuit against firm A is independent of firm B's financial policy or performance. Using this basic idea and data on actual litigation, I construct a proxy for exogenous changes in the value of future litigation for each firm over time, and use this measure to test whether (and how) firms respond to changes in their litigation environment. I validate this proxy by showing that it is significantly related to the probability that a firm is actually sued.

Using this measure, I test if and how financial policy is impacted by the litigation environment. My results indicate that, in periods with a higher risk of litigation, firms increase leverage. In fact, for the mean firm, a one standard deviation increase in my proxy for litigation risk results in an economically significant yet plausible increase in leverage from 20% to 23% (measured as a percent of book value of assets). I show that this is not a passive result due to firm performance, but rather an active decision by managers. These firms buy back significantly more shares of common stock when the risk of litigation increase these share repurchases appear to be financed with cash holdings and an increase in short-term liabilities. These findings are consistent with firms increasing the relative use of debt in order to reduce the value of future litigation claims.

I also show that these firms increase the use of operating leases. Operating leases have similar features to secured debt in the sense that the lease holder has highest priority in bankruptcy - they can simply repossess the leased asset. As firms increase the use of these leases, the value of future litigation claims is reduced because the priority of those claims in bankruptcy has dropped. I find that the mean firm, facing a one standard deviation increase in litigation risk, increases operating leases as percent of assets from 13.5% to 15.6% (an increase of 15.7%.).

These results, which are consistent with the idea that firms strategically adjust their financial policies to impact the value of their litigation claims, are stronger for smaller firms, firms with higher leverage than their industry peers, and firms with lower credit ratings. These findings are consistent with the idea that this strategy has a larger impact on the value of the litigation claims when the probability of bankruptcy is higher. This demonstrates cross sectional variation in the observed behavior within the industry, suggesting the results are not driven by some unobserved, industry-level heterogeneity (such as the maturity of the industry).

This paper contributes to the literature in two primary ways. First, this paper adds to the literature on the strategic use of financial policy. Several theoretical works have explored the bargaining aspects of capital structure. These papers include those on contract bargaining generally (Perotti and Spier (1993)), bargaining with suppliers and employees (Dasgupta and Sengupta (1993)), bargaining with unions (Bronars and Deere (1991)), and the strategic use of debt in the face of takeovers (Israel (1991)). Empirically, Matsa (2009) shows support for use of financial policy strategically in

union bargaining. This paper is most closely related to the work by Gormley and Matsa (2009) that shows that firms facing an increase in litigation risk increase their acquisitions. This supports the idea that managers may respond to litigation, although in this case they focus on investment choice rather than financing choices.

Secondly, this research adds to our understanding of the litigation process. Prior research demonstrates that litigation is costly and that it has a significant negative impact on shareholders (for example, see the case study of Cutler and Summers (1987) who examine the costs related to the Texaco-Pennzoil litigation). Several other papers have established the negative impact of litigation filings on firm stock price as well as the negative price reaction when firms settle lawsuits.[10] Finally, Haslem (2005) looks at agency conflicts in the settlement process, documenting the fact that the market reacts negatively to settlements when compared to judgments (even losing judgments) because of the potential agency conflicts associated with the settlement process.

The rest of the paper is organized as follows: Section two discusses the manager's response to a firm's litigation environment. Section three describes the data used in the empirical tests. Section four discusses the direct effect of litigation events on the firms being sued. Section five describes the construction of the main proxy variable. Section six describes the empirical methodology and results and section seven concludes.

2 Managers and Litigation

Future litigation is a contingent liability for a firm in the sense that, if that litigation is filed and if the firm loses (or settles), the firm will have a liability in the amount of the judgment (or settlement).[11] While these liabilities will only be moved on to the balance sheet at some point after

[10]Specifically, Bhagat et al. (1994) examine the wealth effects of inter-firm litigation and show that defendant stock price drops and total wealth between firms falls. Bhagat et al. (1998) continue this research by examining the effect of the type of litigation and by looking at the market reaction upon conclusion of the case. Karpoff and Lott (1999) show that share price drops after legal settlements.

[11]Even if the firm wins, there are likely to be liabilities associated with costs of the litigation that are incurred merely by the litigation being filed.

the litigation is filed, they nonetheless have some positive expected value today.[12] The value of the firm is therefore a function of these future litigation events. We can think of the value of these future litigation claims as:

$$E(LitigationLiability) = Prob_{Sued} * Prob_{Lose} * E(Liability|_{Lose}),$$

where

$$E(Liability|_{Lose}) = E[Min(Judgment, A - D)],$$

and $A - D$ represents the assets available after all claims senior to the litigation claims have been paid by the firm. Whether the litigant receives the full judgment depends on whether or not the firm goes bankrupt and as such the expected value is a function of the probability of bankruptcy.

The above expression demonstrates that the value of future litigation liabilities is a function of several things. This value is clearly increasing in the probability that the firm is sued and loses. If the firm does lose, then provided it does not go bankrupt the liability is just the amount of the judgment. If, on the other hand, the firm goes bankrupt, the liability is merely the residual assets after claims with higher bankruptcy priority have been paid.

We can see from the expression that the value of this litigation can be affected by an exogenous shock that changes the probability that the firm is sued (or changes the probability the firm loses in court). Such a shock could be brought about by changes in law, legal precedent in the industry, or a shock to the financial resources of plaintiff's attorneys. If such a shock increases the value of future litigation, the value of the firm drops. Managers may be able to mitigate some this value decrease by taking certain actions.

In this case, managers have several ways they can affect the value of the future litigation claims. The popular press has focused on firms building a "War Chest" to defend against litigation.[13]

[12] Under FAS 5, the liability should will be recognized when when it is probable and estimable, which is likely to occur at some point after the litigation is filed.

[13] See for example "Merck & Co Inc - Merck Finally to Answer for VIOXX Injuries", *Market News Publishing*, November 9, 2006.

This is the idea that firms may increase liquid assets, such as cash, in order to successfully defend litigation in court. We can think of this as the managers reducing $Prob_{Lose}$. While this may be an effective strategy in reducing the liability, it also constrains the firm's flexibility with respect to their liquid assets. This strategy may also have an offsetting effect in that the increase in cash holdings, if it comes at a reduction in payout, may simultaneously increase $A - D$, which increases the probability the firm pays the full judgment and increases the value of the residual claim if the firm does go bankrupt. However, some managers may have liability insurance which would essentially replace the war chest strategy. To the extent managers insure against these events ex ante, they would have less incentive to react at all to a changing litigation environment.[14]

Managers may alternatively reduce the value of the litigation claims by reducing $A-D$, the amount available to the litigants should the firm go bankrupt. By increasing the amount of liabilities senior to the litigation claims, the managers can effectively increase the value of the firm. This strategy may also have a complimentary feedback effect in that a reduction in the expected payoff to the litigants conditional on losing may also reduce the probability the firm is sued in the first place, reducing the value of the claim by more than just $(P_{Judgment>A-D}) * \Delta(A - D)$. At the same time, because $A - D$ is reduced, the probability of bankruptcy for the firm increases.

It is important to note that the above strategies apply to some unexpected change in the litigation environment. In equilibrium, things such as product quality, financial policy, and litigation probability are determined jointly at some t_0 given the litigation environment. Customers will have some expectation of product failure as well as litigation payoffs if the product fails. Managers will jointly determine financial policy, product quality, and other firm decisions at that time. However, built into those decisions will be some expectations about the manager's behavior should the litigation environment change (or should realizations differ from expectations) at t_1. Because bankruptcy is possible, managers cannot commit to *not* altering policy in the event of a change in litigation environment. While this will be anticipated in t_0, the change in policy will still be evident at t_1.

It is this change in policy I investigate empirically. Each of these strategies has testable empirical

[14]Unfortunately, data constraints make it difficult to determine the level of insurance carried by firms and, as a result, I cannot specifically test hypotheses related to insurance coverage. However, significant liability insurance coverage will bias against finding a reaction by managers, in any direction, to a change in their litigation environment

predictions. For example, a firm that chooses to build a war chest would be seen increasing cash holdings, potentially through reductions in payout. Firms seeking to impact the value of litigation claims through bankruptcy priority will decrease $A - D$ through an increase leverage via senior (to the litigation) liabilities coupled with an increase in payout. In the following section, I describe the data used to distinguish between these hypotheses.

3 Data

In order to examine the impact of litigation on a firm's financial policy, it is necessary to develop a proxy for the firm's litigation environment. To do so, I examine those litigation events that are likely to signal changes in the litigation environment of the industry as a whole. Those industry lawsuits that are most likely to signal this change are likely to be the large, well-publicized cases. To find a sample of such cases, I use actual litigation events as reported by the Audit Analytics Litigation database. These data cover the period from 2000-2007 and report information on litigation for the Russell 1000 firms from legal disclosures filed with the SEC, litigation details related to class-action and other civil litigation from disclosures and newswires, and registrations and legal opinions filed with the SEC. From this sample of litigation, Audit Analytics collects details related to the specific litigation, including the original date of filing, and if available, the original claim and settlement amounts.[15] While this is in no way an exhaustive list of all litigation faced by the Russell 1000 firms, it is likely to capture all materially large cases, which for the purposes of this study are the cases most likely to cause variation in the litigation environment.[16]

These litigation data are then matched to quarterly financial data over the same period (January 2000 through December 2007). Cases are matched systematically by CIK code and firm name to those firms in the CRSP/Compustat merged database. They are then merged with quarterly financial and return data (calculated from monthly returns) in the quarter in which the case began. It is important to note that many of the cases may involve multiple public firms and, as such, will

[15] Claim and settlement information is available for only a small percentage of the overall cases.

[16] It is unlikely that the omission of certain cases (specifically the small, immaterial ones) will bias the results discussed below.

be matched more than once. Securities class action litigation is dropped from the sample to avoid endogeneity concerns induced by litigation directly related to firm financial policy. Table 1 presents the number of cases in the merged sample as well as summary statistics on the size of the claims and settlements as reported by Audit Analytics. While there is a relatively large sample of litigation events (7,781 cases), the number of cases with detailed information on the size of the claim or the settlement is relatively small (8.7% and 10.3% of the overall sample, respectively). The second row of Table 1 illustrates that, for those cases in which claim data is available, the median claim is quite small at $0.71 million. However, a number of very large suits skew the results considerably, resulting in a mean claim value of $31 billion. Because juries are allowed to award no more than the maximum sought by the plaintiff in the original claim, these numbers are likely to be upwardly biased relative to the true expected loss the firm faces from the litigation. The settlement numbers, while also skewed, are more likely to represent the expected value of the litigation. As can be seen from Table 1, the median settlement amount is $7.4 million while the mean of $88.1 million is skewed by a number of very large suits. The standard deviation of the settlement amounts in the data is $434 million.

The final sample of litigation events covers a wide range of industries. Table 2 shows the average number of new cases by industry (defined at the 2-digit SIC level) each quarter. The industry with the largest average number of new lawsuits each quarter is the *Business Services* industry (134 new cases per quarter) which is a broad industry that includes everything from data processing and security services to advertising and pest control. The second most sued industry is the *Chemicals & Allied Product Mfrs* which, not surprisingly, includes the oft-sued pharmaceutical firms and has 118 new lawsuits per quarter. The industry with the least number of cases in the Audit Analytics data is the *Social Services* industry which has approximately 0.08 new cases per quarter. Table 2 presents the data by 2-digit SIC level for the sake of brevity. As is clear from the *Business Services* category, these industry classifications may be too broad to successfully measure the litigation environment (it is unlikely that the litigation with respect to pest control will have a significant impact on the litigation environment of data processing firms). As such, most of the tests described below will relay on industry classifications defined at the 3 or 4-digit SIC code level.

The litigation sample is then merged with the Compustat quarterly universe over the same time period. Even firms for which no litigation events occur still enter the sample. Table 3 displays summary statistics for the final merged sample used in the analysis. The variables presented are consistent with the financial policy literature in general (including work on cash holdings, payout and capital structure) and are used throughout the remainder of the empirical analysis. *Debt/Assets* is defined as total debt divided by total assets. *Asset Tangibility* is total property, plant, and equipment divided by total assets. *Mkt. to Book* is defined as the book value of debt plus the market value of assets divided by the book value of assets. *ROA* is earnings before interest, taxes, depreciation, and amortization divided by total assets. *Cash Holdings* is cash and short-term investments divided by total assets. *Cash Flow* is defined as operating income minus interest, taxes, and depreciation divided by assets. *Operating Leases / Assets* is the present value of future lease payments divided by total assets.

4 Direct Effect of Litigation

As a first step in examining the impact of the litigation environment of a firm on its financial policy, I look at the direct effect of litigation filings on financial policy. Because the litigation events in my sample are relatively large lawsuits (by virtue of the fact they are reported in firm financials), these litigation filings are likely to represent a significant increase in the present value of litigation claims for the firm being sued. If this is true and if firms are responding to this increased litigation risk, we would expect to see some changes in financial policy around the time of the filing. However, as mentioned above, the prediction on timing of such a response is not obvious. It is not clear how much leeway firms will have to alter financial policy once the litigation has began. It is also reasonable to believe the firm may have information on pending litigation prior to the actual filing.

To examine this effect and account for uncertainty in timing, I look graphically at aggregate firm responses. First, I average the book leverage for all firms that are sued in my sample after lining firms up in event time. 1 presents a graph of the average leverage from four quarters before to four quarters after a litigation filing. On average, leverage seems to increase by about 1% for all firms

in the quarter before the litigation event. This one quarter lead is not surprising in that firms are likely to know when they are going to be sued and may have difficulty adjusting financial policy after the litigation. This seems to suggest that firms increase their leverage in response to in an increase in litigation risk.

Figure 2 shows a similar (albeit noisier) response with common share repurchase. This graph shows that the average common share repurchases as a percent of assets spikes just before the litigation event. Figures 3 and 4 show a similar decrease in cash holdings and increase in trades payable. Taken together, these results suggest that firms, on average, increase their leverage through share repurchases that are funded with an increase in short-term debt and a decrease in cash.

While these results are far from conclusive, they do suggest that, in aggregate, firms are responding to increased litigation claims. In order to draw more robust conclusions and alleviate the omitted variable concern that factors such as recent firm or industry performance may be impacting both litigation events and financial policy decisions, I focus next on examining the effects of exogenous litigation shocks on financial policy decisions.

5 Proxy Construction

In order to capture exogenous variation in a firm's risk of litigation (i.e., the expected value of litigation claims), I examine at actual litigation events involving industry peers. When a firm's industry peers are sued, this may signal that the firm itself is at increased risk of litigation. There are several reasons this may be true. First, it may signal that legal precedent has been set, making litigation in this industry easier. Second, it may signal a generally more litigious environment. Third, it may also indicate that plaintiffs' attorneys suddenly have the financial wherewithal to engage in costly litigation within that industry. As a result, firms may respond when they observe other industry peers being sued. Figure 5 shows a simple illustration of this behavior. When the Merck Vioxx litigation was filed, Pfizer's leverage increased the following quarter.

To construct a specific proxy for the litigation environment of a firm, I examine the number of cases

that begin in each industry each quarter. For each firm, i, in each quarter, t, I count the number of new cases that began for all firms in that industry exclusive of any new cases involving firm i in that quarter. The proxy variable for firm i in quarter t is defined as the the following:

$$LitigationEnvironment_{i,t} = \sum_{j \neq i} n_{jt}$$

where n is the total number of *new* lawsuits in quarter t against firm j. This is summed over all firms in firm i's industry. Industry in this case is defined at the 3-digit SIC code level.[17] This variable will take on larger values when a large number of cases are filed against a firm's competitors. I claim that these periods represent times when the probability of litigation is higher across all firms in the industry, regardless of a particular firm's characteristics.

To test whether this proxy appears to capture an exogenous changes in the risk of litigation, I estimate the probability that a firm is sued in quarter t, conditional on that firm's characteristics and the *LitigationEnvironment* at *t-1*. Table 4 shows the results of conditional logit estimations under three separate specifications. Each model is estimated with groups defined at the firm level to control for unobserved firm-specific effects. Year dummies are also included across specifications and to correct for correlation in the error terms, standard errors are clustered by 3-digit SIC code (because the proxy variable is an industry level variable)[18]. As shown in column 1, the impact of the $LitigationEnvironment_{t-1}$ is positively and significantly related to the probability that a firm is sued in the next period, even after controlling for a variety of firm-specific variables. This result indicates that an increase of one lawsuit among other firms in that industry in the prior quarter increases the odds that a firm will be sued in the current quarter by 1.017 times, or approximately 1.7%. This result is significant at the 1% level. The table also shows that firms with lower market-to-book ratios have an economically and statistically higher probability of being sued. The odds ratio of this variable is approximately 0.60 across all specifications and is significant at the 5% level. In column 3, *ROA* and *Industry Return*$_{t-1}$ are added to the model. Neither impact the

[17] All results are qualitatively similar when using a variable defined at the 4-digit SIC level or using the Fama and French industry classifications.

[18] The groups over which the conditional logit model are defined must be nested within the clusters used in the standard error correction. Because of this, this model is run only on firms that maintain the same 3 digit SIC code over the entire period. Point estimates are similar when the model is run over the entire sample with standard errors clustered by firm. However, in this case the standard errors are also lower.

point estimates or the standard errors from the previous specifications in any meaningful way. These results across the three models are consistent with poorly performing firms, or firms that are in industries in which there are recent lawsuits, being targets for litigation. It is important to note that even after controlling for a variety of firm characteristics across the three specifications, the odds ratio on the $LitigationEnvironment_{t-1}$ is always economically and statistically significant, suggesting that this is a reasonable proxy for an exogenous change in the litigation environment.

Finally, in columns 2 and 3 of Table 4, the firm's debt to assets ratio is included. It is of note that this does not appear to be an important determinant of the probability of litigation. It may suggest that, if firms are adjusting their capital structure in response to litigation, they may be not be doing so completely. This is not surprising given that there are many other potential costs associated with increased leverage.

6 Results

Having developed a proxy for a firm's litigation environment, I examine firm financial policy decisions to determine if the litigation environment plays a role in those decisions. Specifically, I look at firm cash holdings, payout policy (specifically, stock repurchases), and capital structure. Examining the firms' capital structure allows us to better understand if firms are acting strategically to increase firm value in the face of litigation by reducing the value of those claims. Cash holdings will tell us if firms that face a higher probability of litigation maintain higher cash reserves in support of the "war chest" theory. Alternatively, firms may reduce their cash holdings, either through irreversible investment or increased payout, in an effort to reduce the amount of liquid assets available to potential litigants. Finally, looking at a firm's payout policy will help to determine whether managers are taking active steps in the face of this litigation, or whether capital structure and/or cash holdings are changing passively as a result of firm performance.

6.1 Capital Structure

If firms are in fact acting strategically to reduce the value of litigation claims, then those firms facing a higher probability of litigation should utilize more debt in their capital structure. Using the panel of firm specific data described above, I am able to test this hypothesis. Using the seven-year sample of quarterly data, I run a pooled OLS regression which includes my proxy variable for the litigation environment. The specification for these tests generally is:

$$Debt/Assets_{i,t} = \beta_0 + \beta_1 X_{i,t-1} + \gamma LitigationEnvironment_{i,t-1} + \delta_i + \nu_t + \epsilon_{i,t}$$

where $X_{i,t}$ represents a vector of control variables for firm i at time t. The vector of control variables includes those shown to be important in the cross-sectional tests of capital structure (see Titman and Wessels (1988), Hovakimian et al. (2001), Rajan and Zingales (1995), Harris and Raviv (1991), and Lemmon et al. (2008)). These include *Ln Size*, *Mkt. to Book*, *Asset Tangibility*, *Ln Sales*, *ROA*, $Return_{t-1}$, $Industry\ Return_{t-1}$, and $Median\ Industry\ Leverage_{t-1}$. The regressions also include firm and year fixed effects or rolling firm-year effects. These effects control for omitted firm specific variables as well as industry time trends in litigation.

Table 5 shows the results of these regressions. Regression coefficients for columns 1-4 have been standardized by the sample mean and standard deviation and are interpreted as the effect of one standard deviation change in the independent variable. Importantly, the coefficients on the control variables are comparable in magnitude and significance to the results shown in the fixed effect regressions of Lemmon et al. (2008). Column 1 of the table shows a simple specification using the firm's litigation environment as an explanatory variable along with basic firm characteristics and firm fixed effects. It is important to note that this specification identifies the effects of the litigation environment on capital structure using time series variation within firms, and is robust to unobserved heterogeneity (or omitted variables) that differs across firms but is constant over time. The results of this regression indicate that leverage is increasing in the risk of litigation. These results show that an increase of one standard deviation in $LitigationEnvironment_{t-1}$ is associated

with an increase in firm leverage of (0.096*.20) 1.93%. This is a leverage increase increase of 9.63% for the mean firm (from 20% to 21.9%). This result is statistically significant at the 10% level.

Columns 2 and 3 of Table 5 add year effects and firm-36 month effects,[19] respectively, and present further evidence that when the risk of litigation increases, so does firm leverage. These results show that an increase of one standard deviation in $LitigationEnvironment_{t-1}$ is associated with an increase in firm leverage of between (0.125*.20) 2.49% and (0.151*.2) 3.02%. For a firm with mean leverage of 20% this is a percent increase of between 12.5% and 15.08% (from 20% leverage to 22.5% and 23.0% respectively). These results are statistically significant across all all specifications at the 1% level when year effects are controlled for, and at the 10% level without time-specific controls.

In columns 4 and 5 of Table 5, I present a simple changes model. This model calculates the changes of all variables from their value 4 quarters before. This has a similar effect as the fixed effects regression in terms of removing unobserved heterogeneity, but may be easier to interpret. Under this specification, the coefficient on $LitigationEnvironment_{t-1}$ in column 4 is still positive and significant, albeit slightly smaller 0.00547, interpreted as an increase in leverage of 1.09%. Nonetheless, under this simple change-on-change framework, the overall results still hold.

Finally, in order to make interpretation easier, in column 5 of Table 5, I repeat the change model but use an indicator variable as a proxy for the litigation environment. The *High Litigation Risk* variable takes a value of one if the percentage increase in lawsuits for that firm's industry is in the top quartile of all firm-years, and zero otherwise. Similarly, the *Low Litigation Risk* variable takes a value of one if the percentage increase in lawsuits for that firm's industry is in the bottom quartile of all firm-years, and zero otherwise. Under this specification, we see results consistent with columns 1 through 4. Here firms in the top quartile of litigation risk have debt/assets ratios that are 4% higher on average than firms in the middle fifty percent, while firms in the bottom quartile have a debt/assets ratio that are 0.81% lower on average.

As expected, *Ln Size*, *Mkt. to Book*, *Asset Tangibility*, *ROA*, $Return_{t-1}$ and *Median Industry Leverage* are all significant across the specifications in columns 1-3 and are generally consistent

[19] This allows the "fixed" effect to change through time by demeaning each firm's observations by that firm's average over a 36 month period.

with prior literature. The coefficients on *Ln Size* range from 0.1396 to 0.1846 and are statistically significant at the 1% level. This result is consistent with prior evidence that smaller firms have lower leverage (e.g., see Lemmon et al. (2008)). *Mkt. to Book* is also highly significant with estimates between -0.033 and -0.053. The coefficients on *Asset Tangibility* range from 0.23 to 0.28 and are statistically significant at the 1% level across all specifications.

One potential concern regarding the use of the industry lawsuits as a proxy for the firm's litigation environment is that this variable may merely be capturing firm and industry performance. If firms are more likely to be sued when performance is poor and firms in the same industry suffer poor performance at similar times, then this variable may only be capturing this effect. In order to control for this, 5 includes both firm and industry performance variables - *ROA*, lagged industry returns, and lagged firm returns. Even after these controls, the litigation environment variable is still positive and significant. *ROA* and *Quarterly Return*$_{y-1}$ are significant across specifications, consistent with the idea that better performing firms, in the sense of operating performance, have less debt but better stock price performance is associated with higher leverage. Past industry performance is marginally significant in some specifications and is consistent with the idea that firms in better performing industries have higher leverage. It is worth noting that the R^2 value across the specifications in columns 1-3 is greater than 80%, indicating that the variables, including the fixed effects, explain a great deal of the within firm (or firm-three year) variation.

In unreported results, I also conducted this analysis in a Tobit framework to account for the truncation of leverage at 0 (Hovakimian et al. (2001)). These results are qualitatively similar, although the interpretation of fixed effects is more difficult in the non-linear setting. The results are also robust to using longer lags to proxy for the litigation environment, including *LitigationEnvironment*$_{t-2}$ and *LitigationEnvironment*$_{t-4}$.

6.1.1 Large Lawsuits

The use of industry-level litigation as a proxy for an increase in the risk that a given firm is sued reduces the endogeneity associated with litigation of a particular firm and its own capital

structure. However, not all lawsuits against industry peers may signal an important shift in the litigation environment of a given firm. There are likely to be certain bellwether cases that signal such a shift and others that are less important. The lawsuits in my sample are more likely to be those bellwether cases primarily because of their size and the nature of the disclosure requirements that led to the sample construction (i.e., by virtue of their appearance in the data, the cases in the sample are material to the firm being sued).

However, it is likely that bellwether cases are also those cases that have the largest impact on the value of the firm being sued. To further examine this, I conduct an event study for each of the lawsuits in my sample. Using the date the lawsuit was filed, I calculate the abnormal return in the two days around the filing. As expected, the overall reaction is negative and significant (results untabulated).

Using only those lawsuits that are in the top quintile of stock price reaction (the most negative), I repeat the analysis described above. The results (unreported) are consistent with the findings in Table 5. This effect is similar in terms of economic magnitude and statistical significance, suggesting that the overall sample presents a reasonable approximation of the effects of major litigation.

6.2 The Mechanism for Increased Leverage

The above results support the idea that firms may be using their capital structure strategically as the risk of litigation arises. In the following section I investigate how this increase in leverage occurs. On one hand, it is possible that as the litigation environment changes, firms suffer in terms of performance. If this poor performance leads to write-downs of assets, then the increase in leverage may be largely mechanical and not, in fact, attributable to strategic decisions made by firm management. On the other hand, firms may be taking active measures that increase leverage, either through a reduction in assets via dividends or share repurchases, or by raising additional debt capital.

I examine this issue by looking first at the payout policy of firms using a pooled OLS regression

similar to the analysis for capital structure above. The specification is:

$$ShareRepurchases_{i,t} = \beta_0 + \beta_1 X_{i,t-1} + \gamma LitigationEnvironment_{i,t-1} + \delta_i + \nu_t + \epsilon_{i,t}$$

where $X_{i,t}$ represents a vector of control variables for firm i at time t. *Share Repurchases* is defined as *Common Share Repurchase/Assets*. I again use control variables based on prior literature on the determinants of payout policy. As in Fenn and Liang (2001), I include *Ln Size*, *Mkt. to Book*, *Debt/Assets*, and *ROA* as control variables. These regressions also include combinations of firm and year fixed effects (column 1), rolling firm-year effects (column 2), or change-on-change regressions (column 3). Regression coefficients have been standardized by the sample mean and standard deviation and are interpreted as the effect of a one standard deviation change in the independent variable on the dependent variable.

Table 7 presents the results of these regressions. Across all of the various specifications, *Litigation Environment*$_{t-1}$ is statistically significant at the 5% level, with coefficients ranging from 0.1863 to 0.1958. Economically, these coefficients represent an increase in the percent of assets repurchased of between 2.76% and 2.90% for a one standard deviation increase in *Litigation Environment*$_{t-1}$. For the mean firm, this implies nearly a tenfold increase in repurchases. Column 3 presents a regression of changes on changes, and includes indicator variables for high and low litigation risk (as described in previous section). This specification shows that the repurchases as a percent of assets in the high litigation risk category is 0.32% higher than those firms in the middle 50% of litigation risk.

These results show that firms facing an increased risk of litigation repurchase a significantly greater amount of common shares. This is consistent with the idea that firms increase firm value by repurchasing shares, resulting in increased leverage and a wealth transfer from potential litigants to shareholders and/or debtholders.

6.3 Funding Share Repurchase

Overall, the results suggest that managers are taking active measures to increase leverage when the risk of litigation is high. While dividends do not appear to be affected (untabulated), share repurchases are significantly higher when a firm's peers face a greater number of lawsuits. In unreported tests, I find no evidence that firms are actively raising more debt capital. It appears that the effect on leverage is exclusively through share repurchases. However, the question still remains as to where the funds for the repurchase of these shares come from.

To answer this question, I look first at cash holdings using a pooled OLS regression represented by the following equation:

$$CashHoldings_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma LitigationEnvironment_{i,t-1} + \delta_i + \nu_t + \epsilon_{i,t}$$

where $X_{i,t}$ represents a vector of control variables for firm i at time t. This regression is run on quarterly data where the control variables included are based on those variables determined by Opler et al. (1999) to have a significant impact on firm cash holdings. These include *Ln Size*, *Cash Flow*, *Net Working Capital/Assets*, *Mkt. to Book*, *Debt/Assets*, *R&D/Sales*, and lagged returns. The regressions also include firm and year fixed effects or rolling firm-year effects. Regression coefficients have been standardized by the sample mean and standard deviation and are interpreted as the effect of a one standard deviation change in the independent variable on the dependent variable.

Table 8, column 1, shows the first results of this type of regression. We see that cash holdings are lower for firms facing a higher risk of litigation. The coefficient is -0.0395 and is significant at the 5% level representing a decrease in cash holdings of 0.99% for a one standard deviation increase in *Litigation Environment*$_{t-1}$. For the mean firm, this represents of decrease in cash holdings of approximately 4.49%. *Mkt. to Book*, *Cash Flow*, and both lagged firm and industry returns are positively and significantly related to cash holdings. The coefficients on *Net Working Capital/Assets* and *Debt/Assets* are both negative and significant. While the coefficient on *Litigation*

Environment$_{t-1}$ is small, it still suggests that, on the margin, an increase in litigation exposure does reduce the cash holdings of firms on average. Column 2 of Table 8 shows no significant effect of the litigation environment on total current assets. Results on the control variables are consistent with intuition and previous research (e.g. see Opler et al. (1999) or Foley et al. (2007)). *Mkt. to Book*, *Cash Flow*, and both lagged firm and industry returns are positively and significantly related to cash holdings. The coefficients on *Net Working Capital/Assets* and *Debt/Assets* are both negative and significant.

The last two columns of Table 8 examine another potential source of funds for the increased share repurchases. Firms, in addition to reducing cash, may increase short term liabilities, which would be an additional source of capital that they can use to fund share repurchases. We see from columns 3 and 4 that the litigation environment has a positive and significant effect on both accounts payable and total current liabilities. In column 3, the coefficient on *Litigation Environment*$_{t-1}$ represents an increase of 9.39% in accounts payable for a one standard deviation increase in litigation exposure for the mean firm. The coefficient of *Litigation Environment*$_{t-1}$ on total current liabilities is slightly lower and represents and increase of 7.78% for the mean firm. Taken in conjunction with the results on cash holdings, these results suggest that firms are increasing their short-term liabilities and, at the same time, reducing their cash holdings when faced with an increased risk of litigation. These two results suggest a potential source of funds for these firms to increase leverage through share repurchase. Additionally, these results suggest that, on average, firms are not hoarding cash in preparation for litigation but are using cash to repurchase shares and increase their overall leverage.

6.4 Operating Leases

In addition to increasing firm value through share repurchases and the use of short-term debt, firms may also reduce the payoffs to potential litigants by increasing the use of operating leases. When facing litigation, a firm that capitalizes assets puts those assets at risk in judgments (or ultimately bankruptcy). However, firms that lease those same assets can protect those assets from litigants. In bankruptcy, those leased assets would most likely return to the lessor and any other liabilities

to the lessor would be placed in line with the litigants in terms of absolute priority.

We might expect a firm facing an increased risk of litigation to substitute operating leases for capitalized assets. By doing so, the firm would explicitly reduce the value of the contingent liability (i.e., the litigation judgment or settlement). I examine this question by looking at the use of operating leases when the litigation environment has changed. I again used a pooled OLS regression. Because lease data is only available annually, I look at the change in litigation environment over the prior four quarters and ask whether this is associated with change in the use of operating leases. The present value of the operating lease is calculated using an assumed discount rate of 10% (Graham et al. (1998)).

The regression specification is the following:

$$OperatingLeases_{i,t} = \beta_0 + \beta_1 X_{i,t} + \delta_i + \gamma LegalEnvironment_{i,t-1} + \delta_i + \nu_t + \epsilon_{i,t}$$

where $X_{i,t}$ represents a vector of control variables for firm i at time t and δ_i represents firm fixed effects. Regression coefficients have been standardized by the sample mean and standard deviation and are interpreted as the effect of a one standard deviation change in the independent variable on the dependent variable.

The results of this regression are given in Table 9. These results show that the increase in the risk of litigation for a firm is associated with an increase in the use of operating leases by that firm. An increase of one standard deviation in the *Litigation Environment*$_{t-1}$ is associated with an increase in operating leases of up to 15.7% for the mean firm (from 13.5% to 15.6%). These results are robust to using firm and year fixed effects and are statistically significant across all specifications at the 1% level. These results suggest that firms do increase the use of operating leases to reduce the value of litigation claims.

6.5 Financial Distress

The payoff to a strategy of reducing the expected litigation claims by reducing their priority in bankruptcy depends in part on the probability of bankruptcy the firm faces. The firm for which bankruptcy is more probable gains more from a reduction in the assets available to litigation claimants in bankruptcy, all else equal. Because of this, one would expect those firms closer to financial distress to have a greater incentive to utilize such a strategy if the litigation environment changes. In Table 10, I test this explicitly by examining how the effect described above varies with financial distress.

I use three proxies for financial distress: firm size, below investment grade or unrated debt, and above median leverage within the industry. I run similar regressions to those reported in Table 5 and include an interaction of each of these proxies with *Litigation Environment*$_{t-1}$. The control variables in these specifications have been suppressed for brevity, but the estimated coefficients on the controls are consistent with those in Table 5. Column 1 of Table 10 presents results of the standard specification including an interaction term of firm size with the proxy for the litigation environment. If smaller firms are more likely to go bankrupt, then we would expect that those firms are more likely to adjust their capital structure strategically. As shown in Column 1, the results are consistent with this hypothesis. Larger firms are significantly less likely to increase leverage compared to smaller firms during periods when the litigation risk is high.

Column 2 of Table 10 examines the interaction of *Litigation Environment*$_{t-1}$ with *Investment Grade Dummy*$_{t-1}$, which is set to 1 if the firm has an investment grade debt rating and is zero if the firm is either not of investment grade or is unrated. I present a change specification with standardized variables, like that of Table 5 column 4, in lieu of the fixed effects model since the *Investment Grade Dummy*$_{t-1}$ is correlated with the lagged level of capital structure. The results are consistent with those from column 1 and show that more credit-worthy firms adjust their debt/assets ratios less than low credit quality firms when the litigation exposure is high. In this case, the non-investment grade firms show an increase in debt/assets of 4.64% for a one standard deviation change in the litigation environment for the mean firm. This is larger than the effect of the investment grade

firms by 3.11%. This difference is significant at the 1% level.

Finally, in column 3 of Table 10 I examine the effect of a firm's relative leverage on its response to a change in the litigation environment. Like column 2, this regression shows the results of a standardized change model. I let *High Debt Dummy*$_{t-1}$ equal 1 if the firm has higher than its industry median leverage in the prior quarter and zero otherwise. This term is then interacted with *Litigation Environment*$_{t-1}$. The results suggest that firms that are most likely to be financially distressed (those with the highest leverage) will increase their leverage significantly more than those firms with low leverage. This result shows that the high leverage firms increase leverage by 1.5% more than the low leverage firms. This result is significant at the 1% level and is consistent with the results on firm size and debt rating. Taken together, these results suggest that the actions firms take when faced with an increased risk of litigation are related to the probability of bankruptcy the firm faces.

In the main results described in Table 5, identification comes from time series variation in firm leverage and industry litigation. One potential concern with these results is that they are driven by some unobserved industry trend (for example, firms being sued more as the industry matures) . The results shown in Table 10 are important because they demonstrate that there is within industry variation in this effect. This cross-sectional effect shows that the proxy variable is unlikely to be capturing time trends in the industry because the effect differs for firms within that industry. Importantly, this alleviates much of the industry level endogeneity concerns. An unobserved correlated variable at the industry level would not only have to have the same time series effects as the proxy, but would also have to have the same cross-sectional effects.

6.6 Credit Ratings

If firm managers are increasing the risk of bankruptcy to reduce the value of litigation claims, we might expect to see evidence of the behavior reflected in credit ratings. Conversely, if they are building a war chest, then we might actually observe credit ratings improve when the litigation is filed. Part of the difficulty in assessing this issue is that credit ratings do not adjust instantaneously

(Altman and Rijken (2004)). However, it is possible that rating changes are due in part to an increase in the litigation risk a firm faces.[20] I estimate a simple linear probability model to determine if rating changes are related to a change in the firm's litigation environment.

Results of this analysis are reported in Table 11. The dependent variable in column one is a one if the firm's credit rating was upgraded in that quarter, and zero otherwise. The dependent variable for column two is given a value of one if the firm was downgraded in the quarter, and zero otherwise. Finally, column three's dependent variable takes a value of one if the firm was downgraded to junk status, regardless of the starting rating. The independent variables are first differences of standard firm characteristics. Because this sample requires all observations to have credit ratings, the number of firms is reduced dramatically compared to the results presented above. Overall, consistent with Cantor (2004) and Amato and Furfine (2004), these models perform quite poorly in explaining the credit rating changes. Part of this poor performance is due to the lag in which credit rating changes occur. As such, I include four lags of the standard litigation proxy. While there is some evidence that an increase in litigation risk is negatively related to credit rating upgrades, the result is economically small. Moreover, the explanatory power of the models is very low, with R^2 values of less than 1%. However, if we look at the downgrade column, changes to the litigation environment two periods prior have a positive and significant effect on the probability of downgrade. Firms whose peers are sued more are more likely to be downgraded. All lags are also jointly significant at the 5% level. These results suggest that litigation risk increases the risk of default. This is contrary to what we might expect under a war chest strategy and is consistent with the conclusions of the prior sections.

6.7 Spinoffs and Carveouts

If managers are trying to protect assets from litigants, an extreme form of the strategy of changing the priority structure of the firm is for managers to spinoff part of the company. From the perspective of the value of litigation liabilities, this is equivalent to liquidating part of the firm prior to litigation. While this is an interesting alternative, in reality there are very few spinoffs over

[20] Both Cantor (2004) and Amato and Furfine (2004) discuss the difficulty in explaining credit rating changes.

this time period. Based on data from SDC, there were 75 spinoffs and carveouts from 1/1/2000 to 12/31/2007. As such, there is insufficient data to formally test the hypothesis that increased litigation risk for the industry results in increased spinoff activity. However, of these 75 spinoffs, 22 of the parent companies were sued sometime during the sample. This is roughly 30% of all spinoffs. For the unconditional sample, the percentage of firms sued over the period is under 15%, suggesting spinoff firms are more likely to face litigation than a random firm. While this is by no means conclusive evidence, it does suggest there may be a relationship between spinoffs and litigation.

6.8 Alternative Explanations

6.8.1 Shift in Industry Leverage Equilibrium

A potential alternative explanation for why changes in firms' capital structures are associated with to a litigation events within industries is that such litigation events may trigger shifts in the industry leverage equilibria. Shleifer and Vishny (1992) suggest that the leverage within an industry is determined, in part, by the competitive nature of that industry. If the litigation environment variable is capturing periods where some firms in the industry are distressed (as a result of litigation) other firms in the industry may be using excess debt capacity to lever up and purchase the assets of the distressed firms. If this is the case, the behavior observed may not be a strategic use of capital structure to reduce the value of litigation claims.

To address this, first I argue that this is inconsistent with the results showing an increase in share repurchases. Second, I find no evidence that capital expenditures are related to the change in the litigation environment. I find no evidence of increased investment for firms that have an increase in lawsuits within the industry. Finally, as shown in Table 10, I also find that the change in capital structure is stronger for firms which are more likely to be financially distressed, and as a result, less likely to be levering up to purchase assets from distressed peers.

6.8.2 Market Timing

A second related alternative explanation is that litigation against another firm in the industry may result in the undervaluation of peer firms. If the market believes that peer firms have similar liabilities as the sued firm, these firms may find their market values falling. If the management of these firms knows the firm does not have such a liability, they may repurchase shares in an effort to time the market (Baker and Wurgler (2002)) or signal firm value (Vermaelen (1981)). In such a case, controlling for firm and industry returns in the regression may not adequately control for this effect. However, if this is the case, we would expect those firms who find themselves in industries that are being sued but are not sued themselves to subsequently outperform.

To test this, I examine long run returns after the repurchase of shares. Ikenberry et al. (2000) find evidence that firms who begin repurchasing shares out perform over the next two years. I follow their approach by forming portfolios, in calendar time, of firms who repurchase at least 0.05% of assets in a given month. Each month two portfolios are formed, one with firms who are at high risk of litigation, and one with firms at low risk of litigation. Only firms who have not been sued in prior quarter are included. The long run buy and hold returns are calculated for each portfolio, and consistent with Ikenberry et al. (2000), a 3-factor alpha is measured. I present alphas for one and two year holding periods. Table 13 presents the results of this analysis. In this sample, there does not seem to be out performance subsequent to share repurchases. Over both the one and two year horizons, neither group shows evidence of significantly positive abnormal returns. More importantly, there seems to be no difference between the high and low litigation groups. While it is possible that this is a result of low power, the economic magnitude of the point difference is also not very large.

6.9 Robustness

6.9.1 Alternative Proxy Definition

The proxy discussed in **??** is designed to be a simple, easy to interpret measure of the the litigation activity of a given firm's peers. However, it also possible that managers react to not just the volume of litigation in a given quarter, but the accumulation of activity over time. In order to examine this, I develop a variation of the main variable of interest by accumulating new cases over the course of the sample. This proxy is given by:

$$LitigationEnvironment_{i,t} = \sum_{T=0}^{t} \sum_{j \neq i} n_{jt},$$

where n is the total number of *new* lawsuits in quarter t against firm j. This value will be monotonically increasing over the sample for each firm. However, in the fixed effects specification with year effects included, identification will come from variation in the speed of accumulation of these shocks. This has the added advantage that this variable will be symmetric above and below the mean value in the fixed effects specification, addressing issue noted in **??** regarding the censoring of the proxy.

Results using this alternative proxy measure are presented in Table 14. I present a standard specification for three dependent variables: leverage, repurchases, and cash holdings. The results are slightly smaller in magnitude relative to the same specifications using the original proxy. For example, the leverage effect is estimated as a 1.63% increase in leverage for a one standard deviation increase in the accumulation proxy. This a little over half the magnitude of the effect of the primary proxy (3%). However, the results are still statistically significant and economically meaningful. Similarly, the effect on repurchases is a 1.73% increase for a one standard deviation shock compared to a 2.9% increase in the original specification. The effect on cash holdings is a 0.50% decrease in cash holdings for a one standard deviation shock, or roughly half of the original estimate. Despite the smaller magnitudes, these results are consistent with the earlier findings and suggest that the results are robust to the alternative proxy measure.

7 Conclusion

To what extent firms use financial policy strategically is still not well understood. We might expect to see evidence of this behavior when firms face the risk of litigation. Taking advantage of exogenous variation in the probability of litigation I use actual litigation events to construct a proxy for each firm's litigation environment and test whether that environment impacts firm financial policy. My results indicate that in periods with a higher risk of litigation, firms choose higher leverage. I show that this is not a passive result due to firm performance, but rather an active decision by managers. These firms buy back significantly more shares of common stock when the risk of litigation is high and finance these repurchases using cash holdings and an increase in short-term liabilities. Furthermore, these firms increase the use of operating leases which provide a level of protection in bankruptcy. Finally, these results are stronger for firms with a higher probability of bankruptcy. These results are consistent with the idea that firms use financial policy strategically to increase bargaining power and ultimately limit the payoffs to potential litigants. Furthermore, I find no evidence that firms, on average, are hoarding cash in preparation for legal battles.

Overall, these results suggest that firms see financial policy as a strategic tool to influence firm value and that there may be a role for financial policy in dealing with civil litigation. They suggest that additional work in the area would be valuable in helping to determine the extent to which managers are successful in mitigating litigation exposure and minimizing costs, as well as other areas where we may see similar behavior.

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Figure 1: *This figure shows the average Debt/Assets for all firms before and after the filing of the significant litigation.*

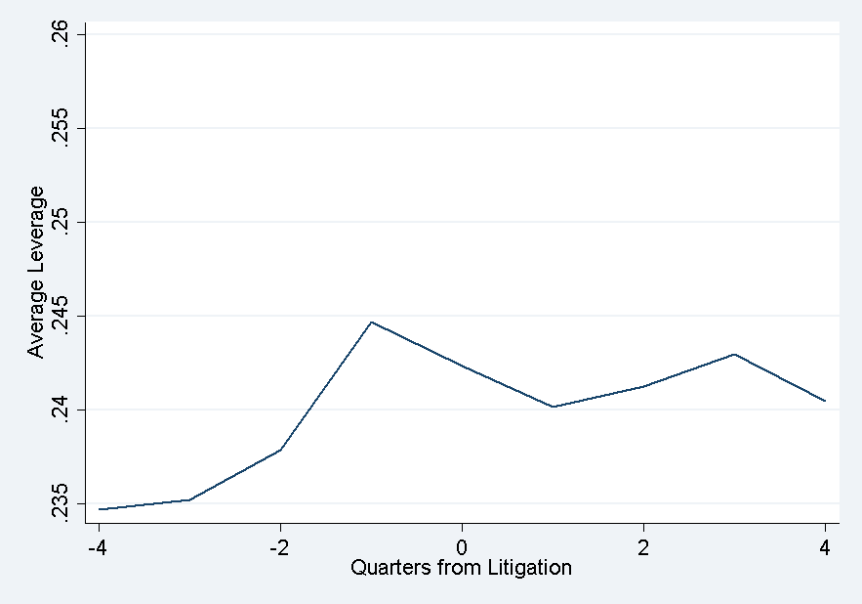

Figure 2: *This figure shows the average amount of share repurchases for firms before and after the filing of the significant litigation.*

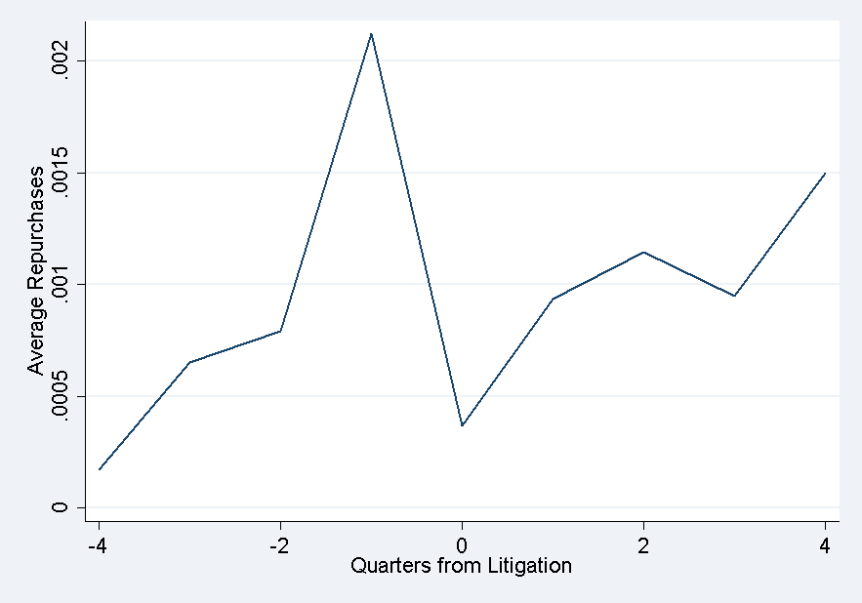

Figure 3: *This figure shows the average amount of average cash holdings for firms before and after the filing of the significant litigation.*

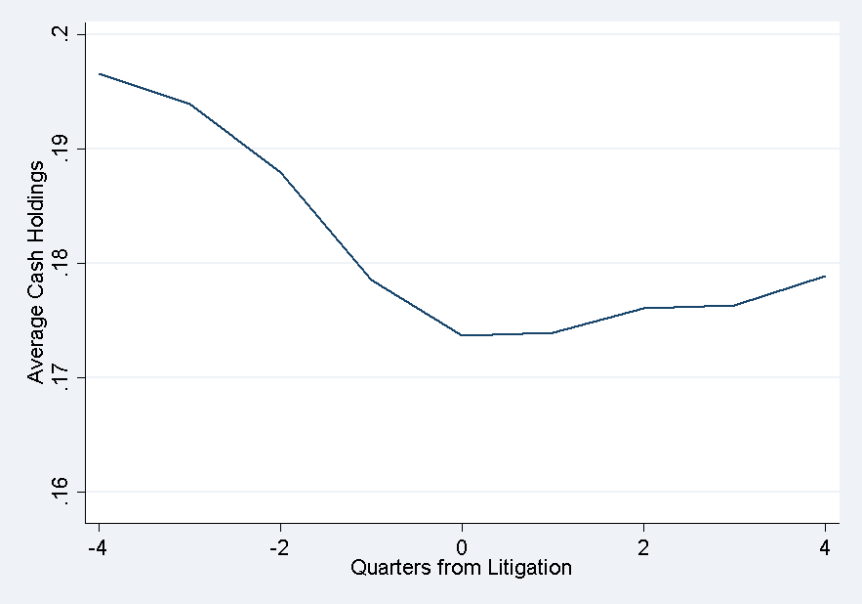

Figure 4: *This figure shows the average amount of average accounts payable for firms before and after the filing of the significant litigation.*

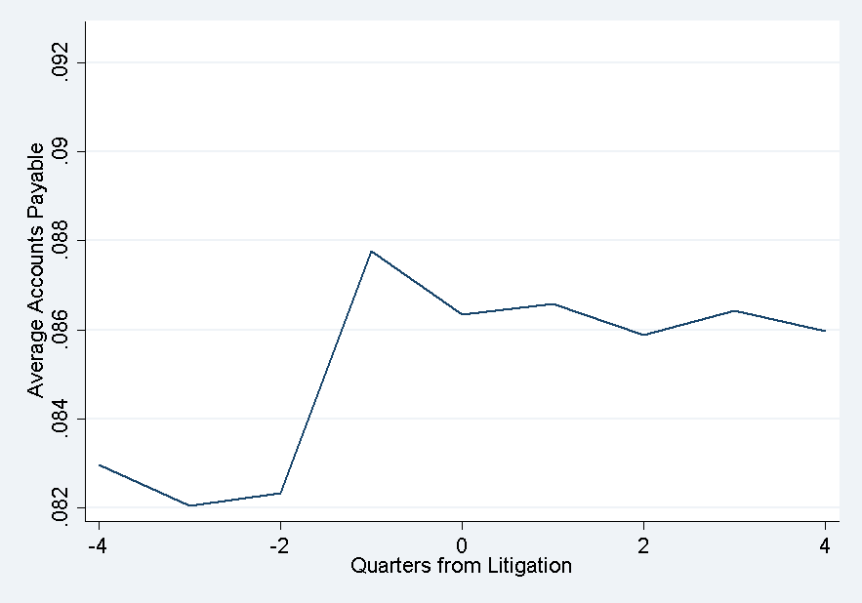

Figure 5: *This figure shows the Debt/Assets for Pfizer before and after the filing of the Merck Vioxx litigation.*

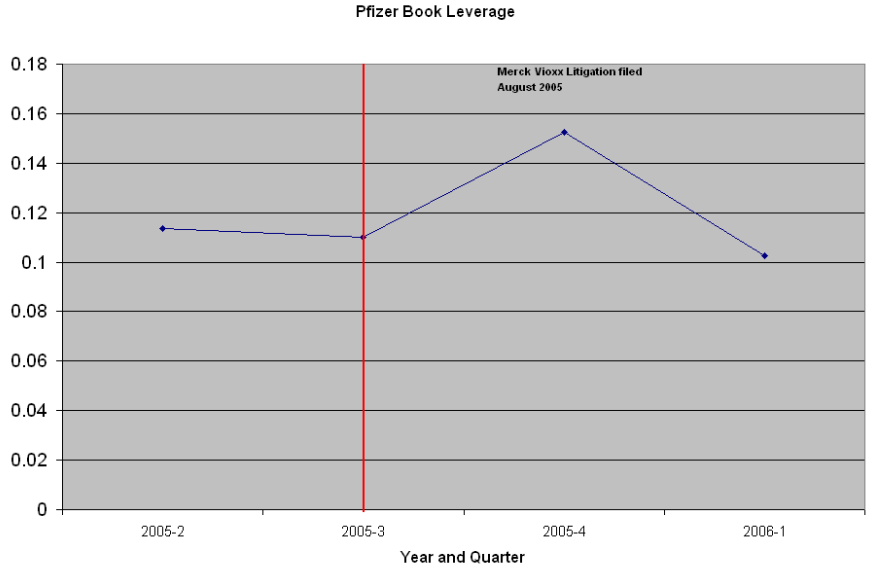

Table 1: Summary Statistics: Litigation Filings

This table presents summary statistics related to the cases in the Audit Analytics database that were successfully matched with the CRSP/Compustat merged database. Claim and settlement means and medians are calculated conditional on being reported

Variable	Observations	Mean($MM)	Median($MM)	Std.Dev($MM)
Cases	7781			
Claim	681	31,000	0.71	783,000
Settlement	806	88.1	7.4	434

Table 2: Average Number of New Litigation Cases Each Quarter by Industry
This table presents the average number of new litigation cases per quarter by industry over the 2000-2007 period in the final merged sample. The industry is classified at the two-digit SIC code level. Only those industries with at least 1 case over the sample period are included in the table.

Industry	SIC	Mean Cases
AGRICULTURAL PRODUCTION-CROPS	1	0.21
AGRICULTURAL PRODUCTION-LIVESTOCK	2	0.18
COAL MINING	12	1.74
OIL & GAS EXTRACTION	13	12.31
MINING & QUARRYING-NONMETALLIC MINERALS	14	0.67
BUILDING CONSTRUCTION-GEN CONTRACTORS	15	2.81
HEAVY CONSTRUCTION EXCEPT BUILDING	16	1.89
CONSTRUCTION-SPECIAL TRADE CONTRACTORS	17	0.72
FOOD & KINDRED PRODUCTS MFRS	20	16.04
TOBACCO PRODUCTS MFRS	21	3.15
TEXTILE MILL PRODUCTS MFRS	22	1.91
APPAREL & OTHER FINISHED PRODUCTS MFRS	23	3.28
LUMBER & WOOD PRODS EXCEPT FURNTR MFRS	24	2.12
FURNITURE & FIXTURES MFRS	25	2.06
PAPER & ALLIED PRODUCTS MFRS	26	6.88
PRINTING PUBLISHING & ALLIED INDUSTRIES	27	7.48
CHEMICALS & ALLIED PRODUCTS MFRS	28	118.07
PETROLEUM REFINING & PLASTICS MFRS	29	10.05
RUBBER & MISCELLANEOUS PLASTICS MFRS	30	6.77
LEATHER & LEATHER PRODUCTS MFRS	31	2.73
STONE CLAY GLASS & CONCRETE PRODS MFRS	32	4.36
PRIMARY METAL INDUSTRIES MFRS	33	8.24
FABRICATED METAL PRODUCTS MFRS	34	8.08
INDUSTRIAL & COMMERCIAL MACHINERY MFRS	35	53.82
ELECTRONIC & OTHER ELECTRICAL EQUIP MFRS	36	97.81
TRANSPORTATION EQUIPMENT MFRS	37	18.6
MEASURING & ANALYZING INSTRUMENTS MFRS	38	40.53
MISCELLANEOUS MANUFACTURING INDS MFRS	39	4.94
RAILROAD TRANSPORTATION	40	1.56
MOTOR FREIGHT TRANSPORTATION/WAREHOUSE	42	2.66
WATER TRANSPORTATION	44	1.06
TRANSPORTATION BY AIR	45	7.58
PIPELINES EXCEPT NATURAL GAS	46	0.11
TRANSPORTATION SERVICES	47	1.08
COMMUNICATIONS	48	29.38
ELECTRIC GAS & SANITARY SERVICES	49	35.8
WHOLESALE TRADE-DURABLE GOODS	50	13.2
WHOLESALE TRADE-NONDURABLE GOODS	51	13.05
BUILDING MATERIALS & HARDWARE	52	2.09
GENERAL MERCHANDISE STORES	53	11.59
FOOD STORES	54	4.22
AUTOMOTIVE DEALERS & SERVICES STATIONS	55	2.6
APPAREL & ACCESSORY STORES	56	10.92
HOME FURNITURE & FURNISHING STORES	57	5.89
EATING & DRINKING PLACES	58	7.08
MISCELLANEOUS RETAIL	59	16.84
DEPOSITORY INSTITUTIONS	60	24.91
NONDEPOSITORY CREDIT INSTITUTIONS	61	8.72
SECURITY & COMMODITY BROKERS	62	31.74
INSURANCE CARRIERS	63	27.01
INSURANCE AGENTS BROKERS & SERVICES	64	8.64
REAL ESTATE	65	0.53
HOLDING & OTHER INVESTMENT OFFICES	67	11.05
HOTELS ROOMING HOUSES & CAMPS	70	3.44
PERSONAL SERVICES	72	3.4
BUSINESS SERVICES	73	132.75
AUTO REPAIR SERVICES & PARKING	75	0.85
MOTION PICTURES	78	7.83
AMUSEMENT & RECREATION SERVICES	79	5.35
HEALTH SERVICES	80	12.36
EDUCATIONAL SERVICES	82	4.07
SOCIAL SERVICES	83	0.08
ENGINEERING & ACCOUNTING & MGMT SVCS	87	14.84
MISCELLANEOUS SERVICES NEC	89	0.16
ADMIN-ENVIROMENTAL QUALITY PROGRAMS	95	0.11
NATIONAL SECURITY & INTERNATIONAL AFFAIR	97	1.2

Table 3: Summary Statistics

This table presents firm level summary statistics for the main variables used in the empirical analysis. *Debt/Assets* is defined as total debt divided by total assets. *Asset Tangibility* is total property, plant, and equipment divided by total assets. *Mkt. to Book* is defined as the book value of debt plus the market value of equity divided by the book value of assets. *ROA* is earnings before interest, taxes, depreciation, and amortization divided by total assets. *Cash Holdings* is cash and short-term investments divided by total assets. *Cash Flow* is defined as operating income minus interest, taxes, and depreciation divided by assets.

Variable	Mean	Median	Std. Deviation	Min	Max
Debt/Assets	0.20	0.16	0.20	0	1.01
Asset Tangibility	0.26	0.18	0.23	0.00	0.99
Mkt. to Book	1.87	1.23	2.24	0.01	101.42
Ln Sales	3.96	4.02	2.33	-6.91	11.50
ROA	0.002	0.024	0.060	-0.318	0.125
Ln Size	5.96	5.46	2.06	-6.91	12.58
Cash Holdings	0.22	0.11	0.25	0.00	1.00
Cash Flow	0.002	0.015	0.065	-6.001	5.813
Net Work. Cap/Assets	0.05	0.03	0.18	-0.76	0.53
AP/Assets)	0.08	0.06	0.08	0	1.32
Current Liab. / Assets	0.19	0.16	0.13	0	1.44
R&D/Sales	0.03	0.02	0.04	0.00	1.92
Common Share Repurchases/Assets	0.003	0	0.148	-0.024	0.93
Operating Leases/Assets	0.13	0.07	0.26	0	0.40
Litigation Environment	0.18	0	11.8	-200	254

Table 4: Conditional Logit Model: Estimating the Probability of a Lawsuit

This table presents a conditional logit model estimating the probability of a lawsuit in a given quarter for a given firm. The dependent variable is equal to 1 if the firm is sued in that quarter and zero otherwise. The groups for the conditional model are defined at the firm level to control for firm specific omitted variables. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, and *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets. Odds Ratios are presented in lieu of coefficients. Standard errors are clustered at the 3 digit sic code.

Variable	1	2	3
$Litigation\ Environment_{i,t-1}$	1.017	1.017	1.017
	[4.13]***	[4.21]***	[4.40]***
$Payout_{i,t-1}$	1.10	1.09	0.99
	[0.15]	[0.14]	[0.02]
$Cash\ Holdings_{i,t-1}$	0.54	0.38	0.24
	[0.37]	[0.50]	[0.62]
$Ln\ Size_{i,t-1}$	1.30	1.33	1.57
	[0.65]	[0.73]	[0.92]
$Mkt.\ to\ Book_{i,t-1}$	0.60	0.60	0.61
	[2.44]**	[2.52]**	[2.53]**
$Asset\ Tangibility_{i,t-1}$	0.29	0.59	0.20
	[0.34]	[0.16]	[0.44]
$Debt/Assets_{i,t-1}$		0.19	0.22
		[0.78]	[0.77]
$ROA_{i,t-1}$			0.001
			[1.04]
$Industry\ Return_{t-1}$			1.12
			[0.38]
Year Dummies	Y	Y	Y

Groups defined at the firm level
Robust z statistics clustered by 3-digit SIC code in brackets.
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Pooled OLS Regression: The Effect of the Litigation Environment on Firm Capital Structure

This table presents the results of a pooled OLS regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{t-1}$ on firm capital structure. The dependant variable is *Debt/Assets*, defined as total debt divided by total assets. The regression is given by the form $Debt/Assets_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma LitigationEnvironment_{t-1} + \epsilon_{i,t}$. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, and *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets. Also included are the lagged firm and industry return and *Ln Sales*. Specifications in columns 1-6 include a variety of indicator variables to control for firm and year effects. Columns 1-4 present standardized regression coefficients. Column 4 and 5 present a simple change regression where all variables are calculated as differences from 4 quarters before. *High Litigation Risk*$_{i,t-1}$ (*Low Litigation Risk*$_{i,t-1}$) is an indicator variables taking a value of one if the increase in litigation is top (bottom) quartile. Standard errors are clustered at the firm level.

Variable				Changes	
	1	2	3	4	5
Litigation Environment$_{i,t-1}$	0.0963	0.1508	0.1245	0.0547	
	[1.68]*	[2.70]***	[3.03]***	[2.10]**	
High Litigation Risk$_{i,t-1}$					0.0381
					[6.04]***
Low Litigation Risk$_{i,t-1}$					-0.0081
					[2.78]***
Ln Size$_{i,t-1}$	0.1396	0.18457	0.1772	0.14778	0.04898
	[3.97]***	[5.02]***	[4.74]***	[5.75]***	[5.38]***
Mkt. to Book$_{i,t-1}$	-0.05207	-0.0535	-0.03299	0.00026	0.00049
	[7.89]***	[8.14]***	[5.76]***	[1.12]	[1.32]
Asset Tangibility$_{i,t-1}$	0.26125	0.22971	0.26722	0.1675	0.16592
	[11.40]***	[9.80]***	[11.40]***	[10.37]***	[9.96]***
Ln Sales$_{i,t-1}$	0.01335	0.05789	0.02322	0.00344	0.00041
	[0.55]	[2.33]**	[1.17]	[0.63]	[0.45]
ROA$_{i,t-1}$	-0.05868	-0.06507	-0.04305	-0.07955	-0.14957
	[8.53]***	[9.24]***	[7.47]***	[7.70]***	[7.32]***
Quarterly Return$_{t-1}$	0.00349	0.00441	0.00458	-0.00363	-0.00023
	[1.99]**	[2.47]**	[3.16]***	[1.21]	[0.57]
Industry Return$_{t-1}$	0.0011	0.00258	0.00209	0.00171	0.0018
	[0.85]	[2.03]**	[1.88]*	[3.25]***	[2.37]**
Industry Leverage$_{t-1}$	0.0045	0.00379	0.00221	0.0327	0.10834
	[5.03]***	[4.74]***	[2.69]***	[6.07]***	[6.28]***
Constant	0.07199	-0.05268	0.04206	0.00011	0.04601
	[3.87]***	[4.57]***	[1.98]**	[0.54]	[3.23]***
R^2	0.8210	0.8239	0.8923	0.0312	0.0339
	243527	243527	243527	223541	223541
Firm Dummies	Y	Y	N	N	N
Year Dummies	N	Y	N	Y	Y
Firm-36 Month Rolling Effects	N	N	Y	N	N
Change Regression	N	N	N	Y	Y

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 6: Pooled OLS Regression: The Effect of the Litigation Environment on Firm Capital Structure - Large vs. Small Shocks

This table presents the results of a pooled OLS regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{t-1}$ on firm capital structure. The dependant variable is *Debt/Assets*, defined as total debt divided by total assets. The regression is given by the form $Debt/Assets_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma LitigationEnvironment_{t-1} + \epsilon_{i,t}$. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, and *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets. Also included are the lagged firm and industry return and *Ln Sales*. Specifications in columns 1-3 include indicators for firm and year effects. All columns present standardized regression coefficients. Column 1 constructs the proxy using only the lawsuits in the largest quintile of negative reactions. Column 2 constructs the proxy using the smallest quintile of reactions. Standard errors are clustered at the firm level.

Variable	Large Shocks	Small Shocks
Litigation Environment$_{i,t-1}$	0.1624	0.0613
	[2.89]***	[1.53]
Ln Size$_{i,t-1}$	0.1849	0.1772
	[5.04]***	[4.79]***
Mkt. to Book$_{i,t-1}$	-0.0531	-0.033
	[8.18]***	[5.78]***
Asset Tangibility$_{i,t-1}$	0.2297	0.2668
	[9.75]***	[11.34]***
Ln Sales$_{i,t-1}$	0.0581	0.0227
	[2.27]**	[1.2]
$ROA_{i,t-1}$	-0.066	-0.044
	[9.3]***	[7.39]***
Quarterly Return$_{t-1}$	0.0037	0.0046
	[2.43]**	[3.25]***
Industry Return$_{t-1}$	0.003	0.0018
	[2.07]**	[1.95]*
Industry Leverage$_{t-1}$	0.0046	0.0027
	[4.78]***	[2.64]***
Constant	-0.0531	0.0421
	[4.59]***	[2.05]**
R^2	0.82	0.79
	243527	243527
Firm Dummies	Y	Y
Year Dummies	Y	Y
Firm-36 Month Rolling Effects	N	N
Change Regression	N	N

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 7: Pooled OLS Regression: The Effect of the Litigation Environment on Common Share Repurchases

This table presents the results of a pooled OLS regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{t-1}$ on firm payout. The dependent variable is *Common Share Repurchases/Assets*, calculated as total total common share repurchases divided by assets. *High Litigation Risk*$_{i,t-1}$ (*Low Litigation Risk*$_{i,t-1}$) is an indicator variables taking a value of one if the increase in litigation is top (bottom) quartile. The regression is given by the form $Payout_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma LitigationEnvironment_{t-1} + \epsilon_{i,t}$. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, and *Debt/Assets*, defined as total debt divided by total assets. Also included are the lagged returns at the firm and industry level. Results are presented as standardized regression coefficients. Specifications include a variety of indicator variables to control for firm and year effects. Standard errors are clustered at the firm level.

	Common Share Repurchases		
Variable	1	2	3
Litigation Environment$_{t-1}$	0.1863	0.19582	
	[2.05]**	[1.98]**	
High Litigation Risk			0.032
			[2.01]**
Low Litigation Risk			-0.014
			[1.74]*
Ln Size$_{i,t-1}$	-0.13729	-0.51943	0.00052
	[0.18]	[0.65]	[1.05]
Mkt. to Book$_{i,t-1}$	8.36225	12.89126	0.0003
	[1.45]	[2.07]**	[1.73]*
ROA$_{i,t-1}$	-0.56389	-0.28471	-0.0013
	[2.31]**	[3.00]***	[2.24]**
Debt/Assets$_{i,t-1}$	-0.08033	-0.11711	0.08437
	[0.31]	[0.45]	[0.45]
Quarterly Return$_{t-1}$	-0.15699	-0.25215	-0.00017
	[1.65]	[2.15]**	[1.67]*
Industry Return$_{t-1}$	-0.03067	0.00236	0.00016
	[1.05]	[0.11]	[0.76]
Constant	3.69629	6.32457	0.00009
	[0.59]	[0.65]	[0.37]
R^2	0.4044	0.5822	0.0347
Firm Effects	Y	N	N
Year Dummies	Y	N	Y
Firm-36 Month Rolling Effects	N	Y	N
Change Regression	N	N	Y

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 8: Pooled OLS Regression: The Effect of the Litigation Environment on Cash Holdings, Current Assets, and Current Liabilities

This table presents the results of a pooled OLS regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{t-1}$ on firm cash holdings, current assets, accounts payable, and current liabilities. The dependant variables are *Cash Holdings*, defined as cash and short-term investments divided by total assets, *Current Assets*, defined as total current assets scaled by total assets, *Accounts Payable* defined as accounts payable scaled by total assets, and *Current Liabilities* defined as total current liabilities divided by total assets. The regression is given by the form $y_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma LitigationEnvironment_{t-1} + \epsilon_{i,t}$. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *Cash Flow*, defined as operating income minus interest, taxes, and depreciation divided by assets, and *Debt/Assets*, defined as total debt divided by total assets. All specifications include firm and year effects. Results are presented as standardized regression coefficients. Standard errors are clustered at the firm level.

Variable	Cash Holdings	Current Assets	Accounts Payable	Current Liabilities
Litigation Environment$_{i,t-1}$	-0.0395	0.0487	0.0939	0.1137
	[2.13]**	[1.34]	[2.35]**	[2.04]**
Ln Size$_{i,t-1}$	-0.01104	-0.56253	-0.68509	-1.07942
	[3.37]***	[7.70]***	[6.42]***	[6.91]***
Mkt. to Book$_{i,t-1}$	0.06029	0.05783	0.00118	-0.01187
	[7.51]***	[9.63]***	[0.26]	[1.99]**
Cashflow$_{i,t-1}$	0.006	0.0112	-0.0336	-0.03474
	[1.63]	[3.43]***	[4.39]***	[4.08]***
Net Working Capital/Assets$_{i,t-1}$	-0.1365	0.07408	-0.1476	-0.34676
	[7.77]***	[8.78]***	[8.44]***	[7.40]***
Debt/Assets$_{i,t-1}$	-0.14741	-0.05048	-0.03752	-0.08331
	[6.13]***	[6.19]***	[4.05]***	[8.79]***
Asset Tangibility$_{i,t-1}$		-0.54522	-0.04331	-0.08344
		[3.11]***	[2.25]**	[4.38]***
Ln Sales$_{i,t-1}$		0.04918	0.4521	0.58715
		[2.41]**	[4.90]***	[7.66]***
Quarterly Return$_{t-1}$	0.00466	0.00204	0.00226	0.00625
	[3.40]***	[1.70]*	[1.29]	[3.80]***
Industry Return$_{t-1}$	0.00129	-0.00192	-0.0049	-0.0052
	[1.27]	[2.10]**	[3.46]***	[4.07]***
Constant	-0.10044	0.02486	0.09067	0.17765
	[10.57]***	[47.33]***	[21.20]***	[37.76]***
R^2	0.9015	0.9248	0.8638	0.8841
	203721	203721	202413	202413
Firm Dummies	Y	Y	Y	Y
Year Dummies	Y	Y	Y	Y

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 9: Pooled OLS Regression: The Effect of the Litigation Environment on the Use of Operating Leases

This table presents the results of a pooled OLS regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{t-1}$ on the amount of operating leases used by the firm. The dependant variable is *Operating Leases / Assets*, defined as the present value of future lease payments divided by total assets. The regression is given by the form $Debt/Assets_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma LitigationEnvironment_{t-1} + \epsilon_{i,t}$. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, and *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets. Also included are the lagged return and *Ln Sales*. Specifications in columns 1-6 include a variety of indicator variables to control for firm and year effects. Results are presented as standardized regression coefficients. All specifications have standard errors clustered at the firm level.

Variable	1	2	3	4	5
Litigation Environment$_{i,t-1}$	0.02209	0.02204	0.02237	0.02242	0.08081
	[5.61]***	[5.63]***	[5.72]***	[5.75]***	[4.12]***
Ln Size$_{i,t-1}$	-0.67464	-0.69346	-0.67652	-0.67635	-0.65297
	[5.03]***	[5.41]***	[4.97]***	[4.99]***	[5.58]***
Mkt. to Book$_{i,t-1}$	-0.03008	-0.02507	-0.0305	-0.0305	-0.0309
	[5.86]***	[5.09]***	[5.90]***	[5.90]***	[4.49]***
Asset Tangibility$_{i,t-1}$	0.04107	0.02574	0.04018	0.04018	0.04023
	[2.09]**	[1.32]	[2.04]**	[2.04]**	[2.73]***
Ln Sales$_{i,t-1}$	0.16829	0.23193	0.17084	0.17082	0.16885
	[7.21]***	[9.29]***	[7.36]***	[7.36]***	[6.02]***
ROA$_{i,t-1}$		-0.07135			
		[10.20]***			
Quarterly Return$_{t-1}$			0.00027	-0.00048	-0.00067
			[0.14]	[0.18]	[1.07]
Industry Return$_{t-1}$				0.0016	0.00175
				[0.94]	[0.62]
Constant	0.00947	0.01005	0.00964	0.00951	0.00951
	[27.78]***	[28.00]***	[27.58]***	[27.58]***	[23.60]***
R^2	0.8925	0.9004	0.8948	0.8943	0.9028
Firm Dummies	Y	Y	Y	Y	Y
Year Dummies	N	N	N	N	Y

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 10: Pooled OLS Regression: The Effect of the Litigation Environment and Financial Distress on Firm Capital Structure

This table presents the results of a pooled OLS regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{i,t}$ on firm capital structure. The dependant variable is *Debt/Assets*, defined as total debt divided by total assets. The regression is given by the form $Debt/Assets_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma_1 LitigationEnvironment_{t-1} + \gamma_2 FinancialDistress * LitigationEnvironment + \epsilon_{i,t}$. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, and *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets. Also included are the lagged return and *Ln Sales*. Financial distress is defined for columns 1-3 respectively as *Ln Size*, *High Debt Dummy*$_{t-1}$ which is an indicator equal to 1 if the firm has higher leverage than its industry median and zero otherwise, and *Investment Grade Dummy*$_{t-1}$ which is an indicator equal to 1 if the firm has investment grade debt ratings and equal to zero if the debt is unrated or below investment grade. Results are presented as standardized regression coefficients.

Variable	1	2	3
Litigation Environment$_{t-1}$	0.3242	0.0464	0.0271
	[1.99]**	[2.87]***	[1.87]*
Ln Size$_{i,t-1}$	0.19136	0.14805	0.14840
	[4.99]***	[4.27]***	[5.33]***
*Size*Litigation Environment*$_{t-1}$	-0.009		
	[1.87]*		
Investment Grade Dummy$_{t-1}$		-0.06454	
		[8.37]***	
Investment Grade$_{t-1}$ **Lit.Env.*$_{t-1}$		-0.0311	
		[2.81]***	
High Debt Dummy$_{t-1}$			0.08541
			[5.12]***
High Debt$_{t-1}$ **Lit.Env.*$_{t-1}$			0.015
			[3.67]***
Constant	-0.04176	0.03798	0.0412
	[2.75]***	[2.16]**	[2.00]**
R^2	0.8246	0.0305	0.0311
Firm Effects	Y	N	N
Year Dummies	Y	Y	Y
Change Regression	N	Y	Y
(Controls suppressed)			

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 11: Linear Probability First Difference Estimation: The Effect of the Litigation Environment on Credit Ratings

This table presents a linear probability regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{i,t}$ on credit rating changes. The dependant variables are indicator variables set to one for the identified credit rating change, and zero otherwise. Column one presents results on upgrades, column 2 on downgrades, and column 3 on downgrades to junk. The regression is given by the form $Prob = \beta_0 + \beta_1 X_{i,t} + \gamma_1 LitigationEnvironment_{t-1} t + \epsilon_{i,t}$. All independent variables represent the one period change in that variable. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, and *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets. Also included are the lagged return and *Ln Sales*. Results are presented as standardized regression coefficients.

Variable	Upgrade	Downgrade	Downgrade to Junk
Litigation Environment$_{i,t-1}$	-0.00091	0.00096	-0.0009
	[1.75]*	[1.04]	[1.24]
Ln Size$_{i,t-1}$	0.00426	-0.00361	-0.00239
	[5.19]***	[2.39]**	[2.17]**
Mkt. to Book$_{i,t-1}$	0.00358	-0.00599	-0.00273
	[4.20]***	[2.81]***	[2.78]***
Asset Tangibility$_{i,t-1}$	-0.00033	0.00227	0.00048
	[0.67]	[2.25]**	[0.67]
Ln Sales$_{i,t-1}$	-0.00085	0.00214	0.00114
	[1.48]	[1.70]*	[1.18]
$ROA_{i,t-1}$	0.00067	-0.0062	-0.00301
	[0.72]	[3.95]***	[2.48]**
Quarterly Return$_{t-1}$	-0.00031	-0.00244	-0.00207
	[0.44]	[2.25]**	[2.23]**
Industry Return$_{t-1}$	-0.00032	0.00303	0.00202
	[0.76]	[3.91]***	[3.09]***
Industry Leverage$_{t-1}$	-0.00031	0.00025	0.00031
	[0.66]	[0.50]	[0.69]
Constant	0.00451	0.00979	0.00056
	[0.98]	[1.50]	[1.03]
R^2	0.0041	0.0042	0.0086
	69630	69630	69630
Year Dummies	Y	Y	Y
Change Regression	Y	Y	Y

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 12: Linear Probability First Difference Estimation: The Effect of the Litigation Environment on Credit Ratings

This table presents a linear probability regression examining the effect of the litigation environment proxy, *Litigation Environment*$_{i,t}$ on credit rating changes. The dependant variables are indicator variables set to one for the identified credit rating change, and zero otherwise. Column one presents results on upgrades, column 2 on downgrades, and column 3 on downgrades to junk. The regression is given by the form $Prob = \beta_0 + \beta_1 X_{i,t} + \gamma_1 LitigationEnvironment_{t-1} t + \epsilon_{i,t}$. All independent variables represent the one period change in that variable. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, and *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets. Also included are the lagged return and *Ln Sales*. Results are presented as standardized regression coefficients.

Variable	Upgrade	Downgrade	Downgrade to Junk
Litigation Environment$_{i,t-1}$	-0.00021	0.00073	0.00034
	[0.31]	[0.54]	[0.30]
Litigation Environment$_{i,t-2}$	-0.00055	0.00221	0.00086
	[0.82]	[2.05]**	[0.96]
Litigation Environment$_{i,t-3}$	-0.00079	0.00061	0.00032
	[1.10]	[0.47]	[0.28]
Litigation Environment$_{i,t-4}$	-0.00094	0.00134	0.0019
	[1.90]*	[1.35]	[2.22]**
Ln Size$_{i,t-1}$	0.00696	0.0028	-0.00536
	[6.17]***	[1.35]	[3.88]***
Mkt. to Book$_{i,t-1}$	0.01127	-0.01339	-0.01075
	[4.11]***	[3.55]***	[4.75]***
Asset Tangibility$_{i,t-1}$	-0.00109	0.00273	0.00085
	[1.46]	[2.01]**	[0.89]
Ln Sales$_{i,t-1}$	0.00025	0.00235	0.00168
	[0.37]	[1.55]	[1.52]
ROA$_{i,t-1}$	-0.00001	-0.00798	-0.00477
	[0.02]	[4.56]***	[3.64]***
Quarterly Return$_{t-1}$	-0.0002	-0.00244	-0.00139
	[0.23]	[1.34]	[0.88]
Industry Return$_{t-1}$	0.00011	0.00309	0.00233
	[0.20]	[2.76]***	[2.38]**
Industry Leverage$_{t-1}$	-0.00037	0.00004	-0.00026
	[0.60]	[0.06]	[0.45]
Constant	0.0035	0.01069	0.00206
	[0.75]	[1.63]	[2.96]***
R^2	0.0039	0.0028	0.0031
	60213	60213	60213
Year Dummies	Y	Y	Y
Change Regression	Y	Y	Y

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.

Table 13: Ex Post Repurchase Outperformance

This table examines the performance of firms after stock repurchases at one year and two year horizons. In calendar time, firms are selected if they repurchased shares in that month(defined as at least 0.1% of assets). Firms are also divided into those with high litigation risk and those with low litigation risk. Three factor alphas are presented. The table presents t statistics for tests of differences in means across each group. Averages for these strategies and t statistics for differences in average returns across the strategies are calculated using the time series of monthly returns. One, two, and three asterisks denote significance at the 0.1, 0.05, and 0.01 levels, respectively.

1 Year Returns			
	Low Litigation	*High Litigation*	t statistic
3-factor alpha	0.28	0.41	(0.88)
t statistic	(1.02)	(1.30)	

2 Year Returns			
	Low Litigation	*High Litigation*	t statistic
3-factor alpha	0.24	0.36	(0.63)
t statistic	(1.26)	(1.41)	

Table 14: Robustness: Accumulated Litigation Shocks

This table presents the results of a pooled OLS regression examining the effect of and litigation environment proxy, *Litigation Environment*$_{t-1}$ on firm capital structure. This proxy looks at the accumulated new litigation events in an industry through time. The dependant variables include *Debt/Assets*, defined as total debt divided by total assets, *Cash Holdings*, defined as cash and short-term investments divided by total assets, and *Common Share Repurchases/Assets*, calculated as total total common share repurchases divided by assets. The regression is given by the form $Debt/Assets_{i,t} = \beta_0 + \beta_1 X_{i,t} + \gamma LitigationEnvironment_{t-1} + \epsilon_{i,t}$. Control variables include *Ln Size*, *Mkt. to Book*, defined as the book value of debt plus the market value of equity divided by the book value of assets, *ROA*, defined as operating income divided by assets, *Asset Tangibility* which is calculated as property, plant and equipment divided by total assets, and *Cash Flow*, defined as operating income minus interest, taxes, and depreciation divided by assets. Also included are the lagged firm and industry return and *Ln Sales*. All specifications include firm and year indicators. Standard errors are clustered at the firm level.

Variable	*Debt/ Assets*	*Common Share Repurchases/Assets*	*Cash Holdings*
Litigation Environment$_{i,t-1}$	0.08167	0.11689	-0.02031
	[4.09]***	[2.41]***	[2.12]**
Ln Size$_{i,t-1}$	0.19975	-0.16214	-0.01063
	[5.32]***	[0.21]	[0.36]
Mkt. to Book$_{i,t-1}$	-0.04343	8.35413	0.05781
	[6.99]***	[1.45]	[7.66]***
Asset Tangibility$_{i,t-1}$	0.23227		
	[9.97]***		
Ln Sales$_{i,t-1}$	0.05697		
	[2.34]**		
ROA$_{i,t-1}$	-0.06857	-0.56502	
	[9.82]***	[2.32]**	
Quarterly Return$_{t-1}$	0.00373	-0.15709	0.00548
	[2.11]**	[1.65]	[3.90]***
Industry Return$_{t-1}$	0.00246	-0.02944	0.00148
	[1.87]*	[1.01]	[1.40]
Industry Leverage$_{t-1}$	0.00444		
	[5.13]***		
Debt/Assets$_{i,t-1}$		-0.08421	-0.14789
		[0.33]	[6.32]***
Cashflow$_{i,t-1}$			0.00611
			[1.67]*
Net Working Capital/Assets$_{i,t-1}$			-0.13745
			[7.99]***
Constant	-0.08534	3.73085	-0.08918
	[5.49]***	[1.86]*	[8.63]***
R^2	0.82	0.4	0.89
	243527	201617	203721
Firm Dummies	Y	Y	Y
Year Dummies	Y	Y	Y

Standard Errors Clustered by Firm. Absolute value t-stats presented.

*significant at 10%, **significant at 5%, ***significant at 1%.