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## Article

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# Executive compensation and conflict between shareholders and creditors: Evidence from creditor litigation

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## ABSTRACT

Using creditor litigation data from China, we investigate whether creditors can participate in corporate governance when agency conflict between shareholders and creditors is severe. By comparing firms that have experienced creditor lawsuits (litigation firms) with those that have not (non-litigation firms), we find that litigation firms have lower pay-performance sensitivity before lawsuits, suggesting that these firms have weaker corporate governance. This result is consistent with our expectation that creditors participate in corporate governance by introducing external monitoring when internal monitoring, dominated by shareholders, is insufficient. We also find that the association is stronger for firms with more severe shareholder-creditor agency conflict. Moreover, creditor litigation is strongly related to low pay-performance sensitivity when the external legal environment is strong. Our results remain robust to different model specifications and after addressing endogeneity problems.

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## 1. Introduction

Shareholders and creditors are key financing providers. They invest in corporations to obtain future returns on investment. As they wish to obtain the expected rate of return, shareholders and creditors are concerned about agency problems and corporate governance in the firms in which they invest (Shleifer and Vishny, 1997; Williamson, 1988; Jensen and Murphy, 1990; La Porta et al., 2000; Kroszner and Strahan, 2001; Martynova and Renneboog, 2008; Nini et al., 2012). Regulators have called for the protection of the rights of shareholders

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and creditors to overcome financing frictions and help firms access external capital (Armour et al., 2015). Therefore, previous studies in economics and finance focus on how to protect the rights of shareholders and creditors through country-level and firm-level monitoring, i.e., legal protection and corporate governance. These two monitoring mechanisms interact; they are either substitutive or complementary (Kim et al., 2007; Gungoraydinoglu and Öztekin, 2011; Abdi and Aulakh, 2012; Ernstberger and Grüning, 2013; El Ghouli et al., 2018; El Ghouli et al., 2017). A lack of country-level legal monitoring increases the likelihood of weak corporate governance, while weak corporate governance requires the intervention of a strong legal environment. Therefore, interaction between the legal system and corporate governance is essential to protect the rights of stakeholders.

However, creditors and shareholders play different roles in corporate governance. It is difficult for creditors to participate in corporate governance, which is dominated by shareholders and management. The literature identifies two types of agency problem in corporations. The first type (Type I) is the standard agent-principal problem between management and shareholders. The second type (Type II) is related to conflicts between shareholders and creditors. In the first type, shareholders use a compensation mechanism to align the interests of management with their own interests. In the second type, creditors participate less directly than shareholders in corporate governance (Nini et al., 2012), because shareholders have residual control rights. The managerial decision-making process is mainly influenced by shareholders, through compensation, shareholder meetings, the voting process, the election of directors, etc. Except in the event of violation of debt covenants, or if the firm defaults or declares bankruptcy, creditors are less directly involved in corporate governance (Townsend, 1979; Gale and Hellwig, 1985; Hart and Moore, 1998; Armour et al., 2015). However, shareholder participation in corporate governance may be insufficient, especially when agency problems are serious. Despite the high agency cost for debtholders, previous studies pay limited attention to how creditors affect corporate governance when shareholders cannot properly reduce moral hazard in the company. Studies suggest that litigation in the form of lawsuits is a critical stopgap measure in corporate governance and stakeholder protection, and is the most frequently used external legal intervention in response to internal management misconduct (Appel, 2019). Therefore, creditor litigation represents the participation of creditors in corporate governance through lawsuits. In this study, we empirically examine the question of whether creditor litigation (external monitoring intervention) is related to low pay-performance sensitivity (PPS), an important indicator of weak corporate governance.

We choose PPS as our indicator of weak corporate governance for two reasons. First, compensation schemes are a dominant method by which shareholders aim to restrict management behavior. The effect of compensation schemes on management behavior has long been studied in the accounting and finance literature (Johnson et al., 1993; Jensen and Murphy, 1990; John and John, 1993; Sung, 2005; Brockman et al., 2010). Compensation schemes are the outcome of the Type I agency problem between managers and shareholders. Information asymmetry between management and shareholders creates incentives and opportunities for management to exploit the interests of the company for their own benefits, instead of maximizing shareholder value. Therefore, compensation contracts are designed to align management interests with the objective of maximizing shareholder value (Jensen and Murphy, 1990). Second, by its nature, compensation is designed by the board of directors and shareholders, without the involvement of creditors. For this reason, compensation schemes provide an appropriate setting to test the conflicts between shareholders and creditors, as creditors have no control over these schemes.

Common practices in compensation contracts include performance-based bonuses, salary revisions, stock options, and performance-based dismissal decisions. Among them, PPS is the most important. PPS indicates how a one-dollar change in compensation is related to a one-dollar change in shareholder wealth (Jensen and Murphy, 1990). Previous studies find that PPS is a strong indicator of corporate governance (Harford and Li, 2007; Kumar and Sivaramakrishnan, 2008; Dhale et al., 2015). As return on assets (ROA) is the measure of firm profitability, low PPS suggests that management compensation is not directly related to the maximization of shareholder wealth. Corporate governance is weak in such circumstances because management incentives cannot be reinforced by compensation schemes.

Corporate governance studies generally conclude that internal governance interacts with external governance to protect the rights of stakeholders, in a substitutive or complementary manner. McKinsey's (2000) surveys find that in countries with weak legal systems, firms with good corporate governance receive premi-

ums. Similarly, [Chen et al. \(2009\)](#) find that in emerging markets, country-level shareholder protection plays a substitutive role with firm-level corporate governance. Using auditors' governance functions, [Choi and Wong \(2007\)](#) show that corporate governance is more important when the legal environment of a country is weak. However, other studies find a substitutive rather than complementary relationship between the two governance mechanisms. [El Ghouli et al. \(2018\)](#) find that auditors' governance role is essential for firm debt maturity, but only in countries with a strong legal environment. In other words, previous studies provide mixed evidence of how corporate governance interacts with the legal environment to reduce the two types of moral hazard problem. In particular, limited attention is paid to how internal corporate governance, dominated by shareholders, interacts with external creditor lawsuits when the agency problem between shareholders and creditors is severe. To fill this research gap, we empirically examine this question in this study.

Using creditor litigation data from China, we find that firms that have experienced creditor lawsuits have low PPS before lawsuits, indicating that these firms have weak corporate governance. This result is consistent with the argument that creditors participate in corporate governance by introducing external monitoring, i.e., lawsuits, when the internal monitoring mechanism dominated by shareholders is insufficient. Our results remain robust to different model specifications and after addressing endogeneity problems. We also find that the relationship is stronger for firms with weak internal control, firms in which management holds a higher percentage of shares, and firms that are not audited by a Big 4 audit firm. Moreover, creditor litigation is strongly related to low PPS when external legal enforcement is stronger and in non-state-owned enterprises (non-SOEs). The results of our additional analyses show that firms with weak corporate governance are more likely to experience creditor litigation in the future, which is consistent with the main results.

We use the Chinese context to examine our research question because creditor lawsuits are an important form of external monitoring in China. China is the world's largest emerging market and its capital market has grown rapidly recently. However, the agency problem is severe in Chinese firms, because strong political intervention and a relatively poor information environment increase moral hazard problems. The Chinese legal system is also different from that of other countries. The Chinese government has stressed the importance of the rule of law since the beginning of the 21st century. However, the legal environment in China still needs to be improved. [Allen et al. \(2005\)](#) demonstrate that the degree of protection of the rights of creditors in China lies between that in countries of English origin (high protection) and that in countries of French origin (weak protection). They also find a low level of law enforcement in China, accompanied by a very high level of corruption. [La Porta et al. \(2004\)](#) show that the protection of property rights in China is weak by global standards, as is political and economic freedom. Therefore, the effect of the legal environment on China's rapidly growing economic and financial systems is worth exploring.

Another important aspect of China's capital market is the dominant role of creditors in providing financing. In China, the main source of firm financing is debt from financial institutions. However, creditors need to monitor firms to protect their rights. Creditors, as corporate outsiders, can participate little in corporate governance, which is dominated by shareholders; instead, they have to monitor firms through litigation (external monitoring). However, creditors face obstacles. The effectiveness of creditor monitoring relies heavily on the legal and bankruptcy systems. If the legal system does not efficiently identify contract violations and does not provide the means to declare bankruptcy and reorganize firms, creditors lose a crucial mechanism of corporate governance ([Levine, 2004](#)). Traditionally, bankruptcy regulations have sought to protect the rights of creditors by preventing shareholders from shifting risk to them. The bankruptcy system in China is not properly regulated and enforced, and even provides shelter for firms to avoid paying creditors. In such circumstances, creditors must rely on external monitoring, the legal system, to protect their rights. The negative signal sent by a lawsuit increases the financing constraints of firms. As debt financing is the main source of financing for Chinese firms, creditor lawsuits are devastating. Once a lawsuit is initiated, the negative signal prevents other creditors from providing financing to a firm. Therefore, creditor litigation is of great importance to Chinese firms. We use this setting to examine how external monitoring introduced by creditors interacts with internal monitoring, which is dominated by shareholders.

Our study makes several contributions to the literature. First, it explains how external monitoring based on the legal environment interacts with internal corporate governance. Previous studies mainly focus on the question of whether country-level legal protection and firm-level corporate governance play substitutive or complementary roles. Unlike previous studies that examine whether firm-level monitoring works and take

country-level monitoring as a given, our study examines whether the legal system intervenes when corporate governance is weak. This question is rarely studied in the literature.

Second, our study contributes to the literature on the agency problem, especially the conflicts between shareholders and creditors. Conflicts between shareholders and creditors are common in companies, particularly for Chinese firms that use debt capital to form an optimal capital structure. Unlike previous studies focusing on a single type of agency problem, we study the conflicts between creditors and shareholders when the agency problem between the shareholders and managers is severe. On the one hand, because creditors receive a fixed interest rate on their investment, they are risk-averse and prefer not to invest in risky projects once their earnings are sufficient to pay back their investment. However, shareholders invest in the company to maximize their market prices, so they prefer risky projects for higher returns. On the other hand, management acts as the agent of shareholders, not creditors. In addition, directors decide on executive compensation schemes on behalf of the shareholders. Therefore, managers are unlikely to be motivated to make decisions in the interest of creditors, and it is difficult for creditors to participate in the managerial decision-making process. When corporate governance, dominated by shareholders, is inefficient, as suggested by low PPS, creditors need to introduce external monitoring to protect their rights. Therefore, we contribute to the literature by examining the conflicts between shareholders and creditors and their different roles in corporate governance.

Third, we contribute to the literature on corporate governance in China. The legal environment and corporate governance in China, as the world's largest emerging market, are very different from those in other countries. Previous studies in law and economics generally exclude China from their cross-country analysis due to data limitations and China's unique economic and political environment. We extend the literature by providing evidence that the monitoring mechanism of the legal system in China plays a substitutive role and is introduced by creditors when corporate governance is weak.

The rest of the study is organized as follows. [Section 2](#) provides a literature review and presents the hypotheses. [Section 3](#) describes the sample and the variables. [Section 4](#) presents the main results and the robustness tests. [Section 5](#) discusses the results of the cross-sectional analysis. Finally, [Section 6](#) concludes the study.

## 2. Literature review and hypothesis development

### 2.1. Literature review

#### 2.1.1. Legal environment and creditor litigation

The law and economics literature generally concludes that investor protection varies between countries ([La Porta et al., 1998](#); [La Porta et al., 2000](#); [Djankov et al., 2008](#)). It shows that legal protection is influenced by institutional factors, such as economic development, culture, and firm political connections. Most of these studies consider a country's legal system as exogenous and examine its effect on corporate governance ([Pagano and Volpin, 2005](#)). However, laws and regulations are products of the political process, which is essentially the product of economic development. Economic development also influences corporate governance. Therefore, how the legal system and corporate governance interact is an empirical question.

[La Porta et al. \(2000\)](#) find that external protection through the legal system is important because corporate insiders, especially controlling shareholders and managers, are likely to expropriate the interests of creditors and small shareholders. Therefore, small shareholders protect themselves from expropriation by participating in corporate governance. [Klapper and Love \(2004\)](#) find that the country-level legal environment varies across countries and that corporate governance is weaker in countries with a weaker legal environment. [Hoskisson et al. \(2009\)](#) show that stricter monitoring leads to higher CEO compensation. In addition, [Acharya et al. \(2011\)](#) find that external governance and internal governance complement each other. Using survey data, [Misangyi and Acharya \(2014\)](#) show that firms perform better when CEO incentive alignment and monitoring mechanisms work together, complementing rather than substituting for each other. They also show an increase in profit when both internal and external monitoring mechanisms are present. However, monitoring mechanisms obviously combine in complex ways, such that there may be simultaneous substitution and complementarity between and within the various monitoring and control mechanisms. Overall, previous studies



find that institutional factors, such as the legal environment, affect corporate governance and can serve as external monitoring when internal monitoring is insufficient.

Creditor lawsuits are the most common type of stakeholder litigation in China. Creditor litigation increases firm risks and affects external financing. The prosecution of a company by creditors means that the stable creditor-borrower relationship has broken down, which will greatly increase the risks of the business and harm the interests of shareholders. After creditor litigation, creditors that are more sensitive to credit will inevitably adjust a firm's credit conditions and may even be reluctant to make loans. This will worsen the firm's financial conditions, resulting in a shortage of funds, which will affect internal cash flow and asset liquidity. In addition, according to legal procedures, once a lawsuit is filed, the corresponding claims will be kept and some of the assets of the company will be frozen, unable to be traded or used normally. Therefore, creditor litigation is a powerful tool for creditors to intervene in corporate governance.

### 2.1.2. The two types of agency problem

There are two types of agency problem. Type I exists when there is a divergence of interests between managers (the agent) and firm owners (the principal) (Jensen and Meckling, 1976; Jensen and Murphy, 1990). Type II exists between shareholders and creditors (John and John, 1993; John et al., 2010). In the first type, shareholders expect management to invest in value maximization projects. However, managers may prioritize their own benefits and costs when making decisions. In this case, they may expropriate the value of the owners for their own interests. To align the interests of management with those of shareholders, compensation schemes are often used (Jensen and Meckling, 1976; Jensen and Murphy, 1990).

However, it is understood that shareholder value maximization does not necessarily lead to welfare maximization. Decisions that increase shareholder value may result in costs for creditors. In the second type of agency problem, the roles of creditors and shareholders are different in terms of business activities. Creditors expect their investment and interest to be repaid. Shareholders expect their market prices to be maximized. Therefore, creditors get fixed interest from their investment by using debt contracts. They also have priority of repayment in the event of bankruptcy. However, increased leverage imposes additional risks on firms, and in particular on shareholders. In contrast, shareholders do not get a fixed interest rate on their capital investment, so they prefer high dividends and increased share prices. Accordingly, shareholders may choose riskier, high-return projects. In contrast, creditors do not benefit from these premiums, so investing in risky projects is less attractive. In short, creditors are more interested in value preservation, while shareholders are more interested in value maximization. This conflict can induce agency costs, such as excessive dividend payments, claim dilution, asset substitution, underinvestment or overinvestment, and excessive covenants in loan contracts (Jensen and Meckling, 1976; Smith and Warner, 1979; Macey, 1991; Becht et al., 2003; Chu, 2017). Therefore, the prevailing view in the accounting and finance literature is that shareholder maximization is the second best solution to the problem of corporate governance.

Most studies focus on the first type of agency problem. Among the various compensation mechanisms, performance-based bonuses and dismissal decisions are the most used. By linking CEO incentives with financial performance, CEOs are motivated to boost accounting numbers, which is at the heart of shareholder value maximization. PPS is therefore an indicator of corporate governance. Previous studies generally conclude that higher PPS indicates better corporate governance (Morck et al., 1988; McConnell and Servaes, 1990; Jensen and Murphy, 1990). For instance, Conyon and He (2011) find that in China, compensation is positively related to firm performance and that PPS is higher in Chinese firms with independent directors and in non-SOEs. Minnick et al. (2011) show that in bank holding companies with high PPS, managers make better acquisition decisions. Similarly, Chahine and Goergen (2014) reveal that higher PPS improves IPO performance. They also find that the positive effect of social ties on IPOs is more pronounced when PPS is higher and that the negative effect of family ties on IPOs is mediated by high PPS. Dai et al. (2014) show that in the event of litigation, PPS decreases, and that after litigation, PPS increases. They attribute these results to a negative relationship between CEO incentives and firm risks.

However, the literature rarely discusses how compensation schemes reflect and influence shareholder-creditor conflicts; in other words, how the two types of agency problems interact. When the first type of agency problem, i.e., conflicts between shareholders and managers, becomes severe, due to the weak role of creditors in internal governance, creditors must take legal action. Therefore, lawsuits are an important

tool for creditors to intervene in governance. Jiang et al. (2010) find that a reduction in conflict between shareholders and debtholders reduces loan yield spreads. Liao (2015) argues that monitoring by blockholders exacerbates the conflict between debt and equity, in turn affecting the choice and structure of debt financing. Chu (2017) find that firms with more conflicts between equity holders and debtholders pay more dividends, suggesting a transfer of wealth from creditors to shareholders. The two exceptions in this line of research are John and John (1993) and John et al. (2010). Using a theoretical model, John and John (1993) find that performance-based compensation can mitigate shareholder-creditor conflicts. As the leverage ratio increases, PPS should decrease to stop shareholders from shifting risk to creditors, thereby protecting their rights. Similarly, John et al. (2010) examine the model empirically and find a negative relationship between PPS and the leverage ratio. They also show that PPS increases if there is strict monitoring by outsiders of firms' risky investments.

## 2.2. Hypothesis development

As corporate governance is dominated by shareholders, and compensation schemes are put in place by shareholders to mitigate the first type of agency problem, it is difficult for creditors to participate directly in corporate governance. Previous studies use debt covenant violations or bankruptcy to examine how creditors intervene in corporate governance in extreme cases. As it is difficult to obtain debt covenant and violation data, we extend the research question by using a unique setting, creditor lawsuits, in which external governance by creditors is clearly anticipated by shareholders and managers.

Creditor lawsuits can reflect corporate governance in two ways. First, in companies with weak corporate governance, both types of agency problem are severe. Indeed, self-interested managers consider their gains and losses first when making investment decisions. The risk of overinvestment or loss of return due to underinvestment reduces shareholder value. Second, creditors are more risk-averse than shareholders, because they only receive a fixed payment regardless of share prices. However, they may not be able to get their payment back in the event of firm bankruptcy. Therefore, creditors are concerned about weak corporate governance.

Based on the literature, shareholders establish performance-based compensation plans to link CEOs' actions with their own interests. With high PPS, CEOs are incentivized to act to increase firm performance, thereby increasing shareholder value. In firms with low PPS, CEOs are less motivated by accounting numbers and more likely to expropriate the interests of shareholders for their own benefit, suggesting a weak corporate governance environment. This weak corporate governance due to the agent-principal problem further aggravates conflict between shareholders and creditors, because creditors are more risk-averse than shareholders. When creditors fear that they will not receive the principal and interest due to uncertainty resulting from the risky actions taken by managers, they need to intervene with external governance, via the legal system.

Based on the above discussion, our first hypothesis is as follows:

H1: Firms with creditor lawsuits have low PPS before lawsuits.

Next, we examine whether the interaction between the external legal environment and internal corporate governance varies for firms with different levels of agency problem. The relationship between creditor lawsuits and PPS is not necessarily the same across firms, and the likelihood of external lawsuits may be directly related to the severity of the agency problem. To the extent that a severe agency problem between shareholders and creditors dampens corporate governance, we expect to find low PPS before lawsuits in firms with a more serious agency problem; that is, more serious conflicts between shareholders and creditors. In line with this argument, Huang (2009) finds that creditors tend to impose a mandatory repayment covenant called an "excess cash flow sweep" in loan contracts to force borrowers to repay their debt ahead of schedule when creditor-shareholder conflicts are severe. Chu (2017) shows that an increase in the difficulty of class action lawsuits reduces loan spreads and that this effect is weaker in countries where creditors have more rights. In addition, Qi et al. (2011) find that firms with stronger shareholder control face an increase in shareholder-creditor conflicts. Therefore, we expect the relationship between creditor lawsuits and PPS to be stronger in firms with more severe creditor-shareholder conflicts. Our second hypothesis is as follows:

H2: The negative relationship between creditor lawsuits and PPS is more pronounced in firms with more severe creditor-shareholder conflicts.

Numerous studies provide evidence that the behavior of creditors and shareholders is shaped by the legal environment, especially legal institutions for the protection of creditors. For example, Brockman and Unlu (2009) find that country-level creditor rights influence dividend policies by balancing power between debt and equity claimants. They also show that compared with the agency cost of equity, the agency cost of debt plays a more decisive role in dividend policies. Consistent with this argument, Qi et al. (2011) find that creditors require fewer covenants in contracts in countries with stronger creditor protection, indicating that creditor protection replaces covenants in reducing the agency cost of debt. Overall, these studies generally suggest that creditors consider the influence of the external legal environment when intervening in external monitoring. We predict that a mature and strong legal environment will enable creditors to use lawsuits to protect themselves. Therefore, creditors are more likely to participate in corporate governance in the form of lawsuits when creditor protection is strong. Our third hypothesis is as follows:

H3: The negative relationship between creditor lawsuits and PPS is more pronounced in stronger legal environments.

### 3. Research design

#### 3.1. Model specification

3.1.1. Following the literature (Cadman et al., 2010), we test the relationship between creditor lawsuits and corporate governance using the following specification:

$$\begin{aligned} \text{Compensation}_{it} = & \alpha_0 + \alpha_1 \text{LIT}_{it+1} + \alpha_2 \text{ROA}_{it} + \alpha_3 \text{ROA}_{it} * \text{LIT}_{it+1} + \text{Controls} + \text{Industry F.E.} \\ & + \text{Year F.E.} + \varepsilon \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Compensation}_{it} = & \alpha_0 + \alpha_1 \text{LIT}_{it+1} + \alpha_2 \text{ROE}_{it} + \alpha_3 \text{ROE}_{it} * \text{LIT}_{it+1} + \text{Controls} + \text{Industry F.E.} \\ & + \text{Year F.E.} + \varepsilon, \end{aligned} \quad (2)$$

where  $i$  and  $t$  are the firm and year indicators, respectively. Based on previous studies (Cadman et al., 2010), we measure  $\text{Compensation}_{it}$  as the natural logarithm of the sum of the cash salaries of the top three highest paid executives. In China, compensation is commonly paid in cash salary.  $\text{LIT}_{it+1}$  is a dummy variable equal to one if firms have creditor lawsuits in year  $t + 1$ , and zero otherwise. Firm performance is proxied by  $\text{ROA}_{it}$  or  $\text{ROE}_{it}$  (Firth et al., 2006). As we examine how creditors intervene in weak corporate governance, we use the lead time  $t + 1$  to investigate how weak corporate governance in the current period results in creditor intervention in the future. Therefore, the interaction term of  $\text{ROA}_{it}/\text{ROE}_{it}$  and  $\text{LIT}_{it+1}$  represents the relationship between corporate governance and the likelihood of creditor lawsuits. We choose financial performance metrics rather than market performance metrics, such as stock prices and returns, for the following reason. In China, there are many more individual investors than institutional investors, which is very different from the situation in developed markets. Retail investors are less rational and less able to collect and process fundamental information than institutional investors (Barber and Odean, 2008; Barber et al., 2009). Thus, stock prices cannot fully reflect the performance of Chinese listed firms. As a result, it is better to use financial performance based compensation measures in the context of China (Fang, 2009; Wang and Zhang, 2012).

We also include a set of control variables used to determine compensation in the literature (Cornett et al., 2008; Fang, 2009). Specifically, we control for  $\text{Size}_{it}$ ,  $\text{Lev}_{it}$ ,  $\text{Growth}_{it}$ ,  $\text{Fshr}_{it}$ ,  $\text{Mshr}_{it}$ ,  $\text{Bsize}_{it}$ ,  $\text{IndBoard}_{it}$ ,  $\Delta \text{Sales}_{it}$ ,  $\text{RetVol}_{it}$ ,  $\text{SOE}_{it}$ , and  $\text{Dual}_{it}$ .  $\text{Size}_{it}$  is measured as the natural logarithm of a firm's total assets.  $\text{Lev}_{it}$  is total liabilities scaled by total assets.  $\text{Growth}_{it}$  is measured as the annual change ratio of the firm's total assets.  $\text{Fshr}_{it}$  is the percentage of outstanding shares held by the firm's largest shareholder.  $\text{Mshr}_{it}$  is the percentage of shares



held by the firm's executives.  $Bsize_{it}$  is the size of the board, measured by the number of directors on the board.  $IndBoard_{it}$  is board independence, which is the percentage of the total number of directors on the board represented by independent directors.  $\Delta Sales_{it}$  is the annual change in total revenue.  $RetVol_{it}$  is the standard deviation of weekly returns in year  $t$ .  $SOE_i$  is an indicator variable equal to one if the firm is a state-owned enterprise (SOE), and zero otherwise. Finally,  $Dual_{it}$  is an indicator variable equal to one if the chairman and the CEO are the same person in year  $t$ . All continuous variables are winsorized at the top and bottom 1%. Year and industry fixed effects are included to control for unobservable factors that are invariant across years and industries. All standard errors are robust to heteroskedasticity and clustered at the firm level.

### 3.2. Sample construction

Our initial sample is based on all A-share firms listed on the Shenzhen Stock Exchange and the Shanghai Stock Exchange. We manually collect lawsuit data from corporate annual reports and construct a proprietary database of creditor litigation. The sampling period extends from 2003 to 2013. We obtain firm financial data from the China Stock Market & Accounting Research database. All financial firms are excluded because the financial sector is heavily regulated. We also remove all firms with missing financial and stock market data. Our final sample includes 12,321 firm-year observations from 1943 firms. Our main variable of interest is  $LIT_{it+1}$ , a dummy variable equal to one for all firm-year observations with creditor lawsuits, and zero otherwise. Therefore, our treatment firms include all firm-year observations with creditor litigation, while our control firms include all firm-year observations with no creditor litigation.

### 3.3. Descriptive statistics

The distribution of the sample is presented in Table 1. Column (1) presents the annual distribution of firms without litigation (non-litigation firms). Column (2) shows the annual distribution of firms with litigation (litigation firms). We observe an upward trend in the number of lawsuits, from 48 lawsuits in 2003 to 123 lawsuits in 2013. We have 1058 firm-year observations in the treatment group and 11,263 firm-year observations in the control group.

Table 2 presents the summary statistics of the final sample. The mean ratio of  $LIT_{it+1}$  is 0.086, suggesting that about 8.6% of the firms in our sample faced litigation during the sampling period. The mean of  $Compensation_{it}$  is 13.732, with a standard deviation of 0.852. Therefore, there is a wide variation in the amount of compensation between firms. The mean value of  $ROA_{it}$  is 0.034 and the mean value of  $ROE_{it}$  is 0.066. The mean ratio of  $Size_{it}$  is 21.7, with a median of 21.568. The other statistics are generally comparable to those reported in previous studies.

Table 1  
Sample Distribution.

Year	$LIT_{it+1} = 0$	$LIT_{it+1} = 1$	Total
2003	226	48	274
2004	401	68	469
2005	700	91	791
2006	871	94	965
2007	895	117	1012
2008	980	119	1099
2009	1101	101	1202
2010	1195	92	1287
2011	1512	89	1601
2012	1688	116	1804
2013	1694	123	1817
Total	11,263	1058	12,321

Note: In this table shows the distribution of the sample by year.

Table 2  
Descriptive Statistics.

Variable	<i>N</i>	<i>M</i>	<i>SD</i>	Min	P25	Median	P75	Max
$LIT_{it+1}$	12321	0.086	0.280	0.000	0.000	0.000	0.000	1.000
$Compensation_{it}$	12321	13.732	0.852	9.932	13.214	13.780	14.305	16.047
$ROA_{it}$	12321	0.034	0.077	−0.946	0.010	0.036	0.069	0.255
$ROE_{it}$	12321	0.066	0.204	−3.023	0.024	0.077	0.140	1.464
$Size_{it}$	12321	21.700	1.253	18.657	20.849	21.568	22.399	25.925
$Lev_{it}$	12321	0.504	0.271	0.043	0.334	0.498	0.643	3.678
$Growth_{it}$	12321	0.177	0.382	−0.716	0.008	0.101	0.234	3.786
$Fshr_{it}$	12321	0.366	0.156	0.081	0.240	0.346	0.486	0.758
$Mshr_{it}$	12321	0.028	0.089	0.000	0.000	0.000	0.000	0.577
$Bsize_{it}$	12321	9.151	1.855	5.000	9.000	9.000	9.000	15.000
$IndBoard_{it}$	12321	0.363	0.050	0.143	0.333	0.333	0.375	0.571
$\Delta Sales_{it}$	12321	0.224	0.620	−0.885	−0.015	0.130	0.303	7.087
$RetVol_{it}$	12321	0.134	0.057	0.035	0.096	0.121	0.159	0.671
$SOE_i$	12321	0.554	0.497	0.000	0.000	1.000	1.000	1.000
$Dual_{it}$	12321	0.179	0.383	0.000	0.000	0.000	0.000	1.000

Note: In this table presents the descriptive statistics for the main variables used in the regressions.

#### 4. Pay-Performance sensitivity and creditor lawsuits

##### 4.1. Main analysis

Table 3 presents the results of our main analysis based on Eqs. (1) and (2). In column (1) and column (2), in which firm performance is proxied by  $ROA$ , we find significant negative coefficients for the interaction term of  $ROA$  and  $LIT$ . Specifically, in column (1), no control variables are included and the coefficient of  $ROA_{it} * LIT_{it+1}$  is significantly negative (−1.691,  $t = -5.71$ ). In column (2), all of the control variables are included and the coefficient of  $ROA_{it} * LIT_{it+1}$  remains significantly negative (−1.869,  $t = -7.11$ ). In columns (3) and (4), in which firm performance is proxied by  $ROE$ , the coefficients of  $ROE_{it} * LIT_{it+1}$  remain significantly negative. Specifically, in column (3), no control variable is included and the coefficient of  $ROE_{it} * LIT_{it+1}$  is −0.922, with a  $t$ -value of −9.79. Similarly, in column (4), the coefficient of  $ROE_{it} * LIT_{it+1}$  is −0.538, with a  $t$ -value of −6.28. The results are consistent with our expectations. In firms with high PPS, managers are incentivized by high salaries and motivated to improve corporate governance. Therefore, corporate governance is better in firms with high PPS, suggesting fewer conflicts between creditors and shareholders. As a result, creditors are less likely to participate in corporate governance in the form of lawsuits.

The signs of the coefficients of the control variables are generally consistent with those of previous studies (Firth et al., 2006; Chen et al., 2015). We find a positive relationship between compensation and firm size, the percentage of management shareholdings, board size, board independence, whether the firm is an SOE, and whether the CEO of the firm is also the chairman of the board. We find a negative association between compensation and leverage, firm growth, the percentage of shares held by the largest shareholder, annual sales growth, and stock return volatility.

In summary, the results in Table 3 support H1 postulating that firms with creditor lawsuits have low PPS before lawsuits. Indeed, there is a negative relationship between creditor lawsuits and PPS, suggesting that creditors are more likely to participate in corporate governance via an external litigation approach when corporate governance dominated by shareholders is weak.

##### 4.2. Robustness Checks

We check the robustness of our main results using a series of sensitivity analyses. We first examine whether our main results are robust to an alternative litigation measure. Specifically, we originally defined  $LIT_{it+1}$  as whether firms have experienced litigation. When collecting the data, we observed that many firms have more than one lawsuit. Therefore, we changed our definition of creditor litigation to  $LITnum_{it+1}$ , measured by the number of lawsuits in which firms have been involved, i.e., the frequency of lawsuits. The results are presented

Table 3  
Main Results.

Variable	(1)	(2)	(3)	(4)
$LIT_{it+1}$	−0.107*** (−2.99)	0.001 (0.02)	−0.209*** (−5.37)	−0.002 (−0.06)
$ROA_{it}$	3.481*** (19.79)	2.864*** (15.99)		
$ROA_{it} * LIT_{it+1}$	−1.691*** (−5.71)	−1.869*** (−7.11)		
$ROE_{it}$			1.118*** (13.11)	0.771*** (10.62)
$ROE_{it} * LIT_{it+1}$			−0.922*** (−9.79)	−0.538*** (−6.28)
$Size_{it}$		0.289*** (23.94)		0.304*** (24.83)
$Lev_{it}$		−0.066 (−1.26)		−0.330*** (−6.16)
$Growth_{it}$		−0.055*** (−3.12)		−0.034* (−1.94)
$Fshr_{it}$		−0.314*** (−3.66)		−0.291*** (−3.34)
$Mshr_{it}$		0.185 (1.56)		0.247** (2.04)
$Bsize_{it}$		0.028*** (3.73)		0.029*** (3.83)
$IndBoard_{it}$		0.133 (0.60)		0.091 (0.40)
$ASales_{it}$		−0.040*** (−3.76)		−0.024** (−2.19)
$RetVol_{it}$		−0.185 (−1.22)		−0.248 (−1.58)
$SOE_{it}$		0.004 (0.13)		−0.007 (−0.23)
$Dual_{it}$		0.097*** (3.01)		0.093*** (2.83)
Constant	12.304*** (110.94)	6.184*** (22.88)	12.332*** (110.43)	6.006*** (21.96)
Ind & Year	YES	YES	YES	YES
Observations	12,321	12,321	12,321	12,321
$R^2$	0.336	0.479	0.308	0.465

Note: In this table presents the results of the main regression. The figures reported in brackets are  $t$ -statistics, based on standard errors clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

in Panel A, Table 4. Our main results remain unchanged. In columns (1) and (2), the coefficients of  $ROA_{it} * LITnum_{it+1}$  are still negative, and equal to  $-1.030$ , with a  $t$ -value of  $-9.45$ , when all controls are included (column 2). The results are similar in columns (3) and (4), with a coefficient of  $ROE_{it} * LITnum_{it+1}$  equal to  $-0.251$  and a  $t$ -value of  $-6.43$  (column 4). Therefore, our main results are not sensitive to this alternative measure of creditor litigation.

We also examine whether our main results hold with a different sampling period. A number of laws and enforcement measures relating to creditor protection were introduced in around 2006, such as the Bankruptcy Law and the Property Law. Previous studies show that the adoption of these laws has significantly increased legal protection, especially the protection of creditors (Berkowitz et al., 2015). To eliminate the concern that our results are driven by the adoption of these laws, we use a sampling period after 2006 and re-estimate the equations. The results are reported in Panel B of Table 4. Our results remain unchanged. We still find a negative coefficient for the interaction term of  $ROA/ROE$  and  $LIT$ . Therefore, the negative relationship between PPS and creditor litigation still holds despite the adoption of legal protection laws.

Finally, we examine whether our results are robust to different regression methods. In the main analysis, all coefficients and standard errors are clustered at the firm level. We change the clustering method to both the

Table 4  
Robustness Checks.

Panel A: Using the number of lawsuits				
Variable	(1)	(2)	(3)	(4)
$LITnum_{it+1}$	−0.124*** (−4.08)	−0.054* (−1.79)	−0.194*** (−6.41)	−0.029 (−0.96)
$ROA_{it}$	3.486*** (20.57)	2.799*** (16.03)		
$ROA_{it} * LITnum_{it+1}$	−1.144*** (−10.63)	−1.030*** (−9.45)		
$ROE_{it}$			1.051*** (13.59)	0.717*** (10.98)
$ROE_{it} * LITnum_{it+1}$			−0.476*** (−10.26)	−0.251*** (−6.43)
Controls	NO	YES	NO	YES
Constant	12.314*** (111.35)	6.245*** (23.18)	12.337*** (110.99)	6.017*** (22.06)
Ind & Year	YES	YES	YES	YES
Observations	12,321	12,321	12,321	12,321
$R^2$	0.339	0.480	0.308	0.465
Panel B: Using the sample after 2006				
Variable	(1)	(2)	(3)	(4)
$LIT_{it+1}$	−0.096** (−2.55)	0.015 (0.46)	−0.167*** (−4.16)	0.013 (0.39)
$ROA_{it}$	3.479*** (17.39)	2.855*** (13.96)		
$ROA_{it} * LIT_{it+1}$	−1.030*** (−3.10)	−1.326*** (−4.25)		
$ROE_{it}$			1.417*** (15.62)	0.942*** (11.48)
$ROE_{it} * LIT_{it+1}$			−0.922*** (−8.01)	−0.477*** (−4.48)
Controls	NO	YES	NO	YES
Constant	13.702*** (114.87)	7.492*** (26.26)	13.749*** (117.18)	7.371*** (25.88)
Ind & Year	YES	YES	YES	YES
Observations	9822	9822	9822	9822
$R^2$	0.229	0.405	0.213	0.394
Panel C: Clustered at the firm and year levels				
Variable	(1)	(2)	(3)	(4)
$LIT_{it+1}$	−0.107*** (−3.36)	0.001 (0.02)	−0.209*** (−5.00)	−0.002 (−0.06)
$ROA_{it}$	3.481*** (17.22)	2.864*** (15.72)		
$ROA_{it} * LIT_{it+1}$	−1.691*** (−4.30)	−1.869*** (−5.50)		
$ROE_{it}$			1.118*** (7.21)	0.771*** (8.12)
$ROE_{it} * LIT_{it+1}$			−0.922*** (−10.45)	−0.538*** (−8.13)
Controls	NO	YES	NO	YES
Constant	13.702*** (114.87)	7.492*** (26.26)	13.749*** (117.18)	7.371*** (25.88)
Ind & Year	YES	YES	YES	YES
Observations	12,321	12,321	12,321	12,321
$R^2$	0.336	0.479	0.308	0.465

Note: In this table presents the results of the robustness tests. The figures reported in brackets are *t*-statistics, based on standard errors clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

firm level and the year level. The results are reported in Panel C of Table 4. The negative relationship between PPS and creditor litigation remains unchanged. Therefore, our results are robust to different regression methods.

#### 4.3. Endogeneity

Endogeneity may be a concern. There are two potential endogeneity problems in our setting. First, whether creditors initiate litigation is a decision. If there are certain omitted factors that are related to creditors' litigation decisions and these factors affect PPS, endogeneity is a concern. Second, there may be fundamental differences between our treatment sample and control sample. In other words, litigation firms may be fundamentally different in terms of corporate governance or financial reporting from non-litigation firms. We assume that there is no difference between the two groups in our main analysis. If this assumption does not hold, endogeneity is a concern.

To eliminate potential selection bias and omitted variable bias, we use a propensity score matching (PSM) approach (Rosenbaum and Rubin, 1983; Conyon and He, 2016). Specifically, we match litigation firms and non-litigation firms, and re-estimate Eqs. (1) and (2) using the treatment sample and the matched samples.

In the first stage, following the literature (Wang and Jiang, 2016), we include the following variables:  $Size_{it}$ ,  $Lev_{it}$ ,  $ROA_{it}$ ,  $Asales_{it}$ ,  $ST_{it}$ ,  $PPE_{it}$ ,  $WC_{it}$ ,  $Age_{it}$ ,  $RetVol_{it}$ , and  $Zscore_{it}$ .  $ROA_{it}$  is income before extraordinary items divided by total assets.  $ST_{it}$  is an indicator variable equal to one if the share is specially treated in year  $t$ .<sup>1</sup>  $PPE_{it}$  is net property, plant, and equipment scaled by total assets.  $WC_{it}$  is working capital divided by total assets, where working capital is measured as the difference between current assets and current liabilities.  $Age_{it}$  is measured by the difference between year  $t$  and the firm's listing year. Finally,  $Zscore_{it}$  is the bankruptcy index calculated following Altman (1968). The dependent variable is  $LIT_{it+1}$ . The other variables are defined in the same way as in the main regression. We use a probit model to estimate the propensity scores and match the treatment firms with the control firms based on the closest propensity score (without replacement) in the same industry and the same year. After identifying matching control firms for each treatment firm, we re-estimate Eqs. (1) and (2) using the matched samples.<sup>2</sup>

The results are presented in Table 5. In column (1) and column (2), in which performance is proxied by  $ROA$ , the coefficients of  $ROA_{it} * LIT_{it+1}$  are still significantly negative, suggesting that firms with low PPS are more likely to be sued in the next period. In column (3) and column (4), in which firm performance is proxied by  $ROE$ , the results remain unchanged. Overall, our results remain unchanged when using the PSM method and are not driven by endogeneity.

### 5. Cross-Sectional variation in the relationship between creditor litigation and Pay-Performance sensitivity

#### 5.1. The role of shareholder-creditor agency conflict

Corporate finance theory suggests that agency conflict is the main source of incentive problems. There are various types of agency costs, including the agency cost of equity (conflicts between equity holders) and the agency cost of debt (conflicts between debtholders and shareholders). In firms with a high agency cost of equity, managers may deviate from the initial objective of firm value maximization. The PPS incentive system may work differently in firms with a severe agency problem. Managers may manipulate firm performance to secure higher salaries, which is difficult to detect when corporate governance is weak. As a result, it is even more difficult for creditors to participate in corporate governance. In contrast, in firms in which the agency cost of debt is high, creditors have more incentives to participate in corporate governance and protect their rights. Therefore, we postulate in H2 that the negative relationship between PPS and creditor lawsuits is stronger in firms with a serious agency problem.

<sup>1</sup> On April 22, 1998, the Shanghai and Shenzhen stock exchanges announced that firms with abnormal financial status should trade with "ST" status. Firms that report losses for two consecutive years are classified as having abnormal financial status.

<sup>2</sup> The results of the first stage regression are presented in Appendix A1. Appendix A2 presents the matching efficiency results for the main variables used in the PSM approach. The results show that the treatment sample is comparable to the control sample.



Table 5  
PSM Results.

Variable	(1)	(2)	(3)	(4)
$LIT_{it+1}$	−0.001 (−0.02)	0.014 (0.38)	−0.052 (−1.19)	0.011 (0.31)
$ROA_{it}$	2.555*** (8.91)	1.899*** (7.14)		
$ROA_{it} * LIT_{it+1}$	−0.921** (−2.54)	−1.037*** (−3.19)		
$ROE_{it}$			0.439*** (4.45)	0.369*** (5.15)
$ROE_{it} * LIT_{it+1}$			−0.278** (−2.52)	−0.183** (−2.07)
$Size_{it}$		0.289*** (13.94)		0.302*** (14.73)
$Lev_{it}$		−0.045 (−0.70)		−0.193*** (−3.12)
$Growth_{it}$		−0.042 (−1.02)		−0.011 (−0.26)
$Fshr_{it}$		−0.377** (−2.45)		−0.398** (−2.57)
$Mshr_{it}$		0.956*** (2.74)		0.962*** (2.76)
$Bsize_{it}$		0.031*** (2.68)		0.033*** (2.88)
$IndBoard_{it}$		0.225 (0.63)		0.238 (0.66)
$\Delta Sales_{it}$		−0.037* (−1.74)		−0.029 (−1.34)
$RetVol_{it}$		−0.481* (−1.77)		−0.442 (−1.57)
$SOE_{it}$		0.012 (0.24)		0.013 (0.26)
$Dual_{it}$		0.102* (1.73)		0.096 (1.63)
Constant	12.309*** (75.77)	6.135*** (13.29)	12.319*** (72.50)	5.905*** (12.84)
Ind & Year	YES	YES	YES	YES
Observations	2114	2114	2114	2114
$R^2$	0.337	0.468	0.297	0.462

Note: In this table presents the results of propensity score matching. The figures reported in brackets are  $t$ -statistics, based on standard errors clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

To test H2, we follow the literature (Kanodia and Lee, 1998; Johnson et al., 2000; Ruland and Zhou, 2005; Rani et al., 2012; Chen et al., 2015) and build proxies for the agency problem between shareholders and creditors. Specifically, we use three proxies. The first measure is internal control weakness ( $ICW$ ). The weaker the internal control system, the greater the agency problem between shareholders and creditors. The second proxy is the percentage of shares held by management ( $Mshr$ ). Firms with a higher percentage of management shareholdings are perceived as having a more severe agency problem between shareholders and creditors. The third proxy is whether the firm is audited by a Big 4 audit firm ( $Big\ 4$ ). Big 4 auditors strictly control financial information, which reduces the agency problem. Therefore, creditors are less concerned about corporate governance in firms with Big 4 auditors. For each agency problem proxy, we divide the full sample into firms with a high agency problem and firms with a low agency problem based on the sample median.

The results are reported in Table 6. Panel A presents the results using  $ICW$  as the agency problem proxy. In the subsample with low  $ICW$ , the coefficient of  $ROA_{it} * LIT_{it+1}$  is 1.145, with a  $t$ -value of 1.12. In the subsample with high  $ICW$ , the coefficient of  $ROA_{it} * LIT_{it+1}$  is −1.736, with a  $t$ -value of −6.75. The results are similar when using  $ROE$  as the firm performance proxy in column (3) and column (4). We continue to find more pronounced results in the high agency problem subsample using other proxies (Panel B and Panel C). Overall, the

Table 6

The Role of Shareholder-Creditor Agency Conflict.

**Panel A: High versus low ICW**

Variable	(1) High	(2) Low	(3) High	(4) Low
$LIT_{it+1}$	−0.051 (−1.43)	0.001 (0.01)	−0.032 (−0.88)	0.129* (1.72)
$ROA_{it}$	2.218*** (11.97)	3.523*** (10.79)		
$ROA_{it} * LIT_{it+1}$	−1.736*** (−6.75)	1.145 (1.12)		
$ROE_{it}$			0.474*** (7.51)	1.571*** (9.91)
$ROE_{it} * LIT_{it+1}$			−0.313*** (−4.13)	−0.638 (−1.25)
Controls	YES	YES	YES	YES
Constant	6.702*** (19.12)	6.218*** (17.80)	6.489*** (18.30)	6.452*** (18.38)
Ind & Year	YES	YES	YES	YES
Observations	6100	093	6100	6093
$R^2$	0.458	0.432	0.445	0.427
Diff-Test for the coefficients of $ROA_{it} * LIT_{it+1}$		$\chi^2 = 8.31^{***}$		
Diff-Test for the coefficients of $ROE_{it} * LIT_{it+1}$				$\chi^2 = 4.58^{**}$

**Panel B: High versus low Mshr**

Variable	(1) High	(2) Low	(3) High	(4) Low
$LIT_{it+1}$	0.076* (1.69)	−0.048 (−1.14)	0.085* (1.92)	−0.051 (−1.21)
$ROA_{it}$	3.110*** (12.18)	2.423*** (10.34)		
$ROA_{it} * LIT_{it+1}$	−1.926*** (−4.47)	−1.716*** (−5.26)		
$ROE_{it}$			0.960*** (7.98)	0.616*** (7.53)
$ROE_{it} * LIT_{it+1}$			−0.626*** (−4.42)	−0.450*** (−4.46)
Controls	YES	YES	YES	YES
Constant	5.420*** (13.83)	6.873*** (20.99)	5.300*** (12.98)	6.716*** (20.39)
Ind & Year	YES	YES	YES	YES
Observations	6157	6164	6157	6164
$R^2$	0.504	0.464	0.490	0.455
Diff-Test for the coefficients of $ROA_{it} * LIT_{it+1}$		$\chi^2 = 2.78^*$		
Diff-Test for the coefficients of $ROE_{it} * LIT_{it+1}$				$\chi^2 = 3.02^*$

**Panel C: Big 4 versus non-Big 4**

Variable	(1) Big 4	(2) Non-Big 4	(3) Big 4	(4) Non-Big 4
$LIT_{it+1}$	0.020 (0.16)	0.027 (0.81)	−0.037 (−0.32)	0.024 (0.70)
$ROA_{it}$	3.297*** (3.62)	3.012*** (13.63)		
$ROA_{it} * LIT_{it+1}$	1.669 (0.73)	−1.818*** (−5.45)		
$ROE_{it}$			0.641** (2.39)	0.955*** (11.97)
$ROE_{it} * LIT_{it+1}$			0.563 (1.05)	−0.556*** (−5.43)

(continued on next page)

Table 6 (continued)

Variable	(1) Big 4	(2) Non-Big 4	(3) Big 4	(4) Non-Big 4
<i>Controls</i>	YES	YES	YES	YES
Constant	7.998*** (7.17)	6.640*** (20.92)	7.888*** (6.95)	6.771*** (20.93)
Ind & Year	YES	YES	YES	YES
Observations	668	9514	668	9513
$R^2$	0.530	0.388	0.517	0.380
<i>Diff-Test for the coefficients of <math>ROA_{it} * LIT_{it+1}</math></i>		$\chi^2 = 3.79^*$		
<i>Diff-Test for the coefficients of <math>ROE_{it} * LIT_{it+1}</math></i>				$\chi^2 = 4.63^{**}$

Note: In this table presents the results for the role of shareholder-creditor agency conflict. The figures reported in brackets are *t*-statistics, based on standard errors clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

regression results support H2. Creditors have more incentives to participate in corporate governance via external litigation when the agency problem between shareholders and creditors is more severe.

### 5.2. The role of the external legal environment

Previous studies generally find that the legal environment plays an important role in shaping the behavior of creditors (Clemen and Gugler, 2000). For example, Brockman and Unlu (2009) find that country-level creditor rights influence firm-level dividend policies by establishing a balance of power between debtholders and shareholders. The interaction between creditors and managers/shareholders changes with external measures to protect creditors. To the extent that the cost of litigation is lower and litigation is more efficient in a stronger legal environment, we expect the negative relationship between creditor litigation and PPS to be more pronounced in a strong legal environment (H3).

We use two proxies for the legal environment. The first is the legal index. Following Fan and Wang (2012), we use the number of lawyers as a percentage of the population, the efficiency of local courts, and the protection of property rights. The sample is divided into firms with a strong legal environment and firms with a weak legal environment based on the sample median. The second proxy is whether the company is an SOE. It is difficult for external creditors to sue SOEs because of their political affiliation. Therefore, the legal protection of creditors is weaker if they lend to SOEs.

The results are presented in Table 7. In Panel A in which the rigor of the legal environment is proxied by the legal index, we find that the coefficients of  $ROA_{it}/ROE_{it} * LIT_{it+1}$  are more significantly negative in the subsample with a strong legal environment. The results are the same when we use SOE status as a proxy (Panel B). The legal environment is stronger in non-SOEs, because political interventions are heavier for SOEs. Overall, the results support H3. In a strong legal environment, the low cost and high efficiency of litigation help creditors participate in corporate governance in the form of lawsuits, so the relationship between creditor lawsuits and PPS is more pronounced in a strong legal environment.

### 5.3. Alternative measure of corporate governance

In this section, we present our results using an alternative measure of corporate governance: earnings opacity. Previous studies show that corporate governance is strongly related to the information environment of firms (Armstrong et al., 2012). Therefore, we use *Earnings Opacity* as an alternative measure of corporate governance. Greater earnings opacity indicates a poorer information environment and weaker corporate governance.

The results are presented in Table 8. We use three measures of earnings opacity. The first measure is the absolute value of discretionary accruals based on the modified Jones model (Dechow et al., 1995). The second measure is the absolute value of discretionary accruals following Dechow and Dichev (2002). The third measure is earnings opacity, calculated as the three-year moving sum of the absolute value of annual discretionary accruals (Hutton et al., 2009). We find a significantly positive association between earnings opacity and creditor litigation in the next period. The results are consistent with the main results, showing that firms with weaker internal corporate governance are more likely to be subject to creditors' intervention through external lawsuits.

Table 7  
The Role of the External Legal Environment.

**Panel A: High versus low Legal Index**

Variable	(1) High	(2) Low	(3) High	(4) Low
$LIT_{it+1}$	0.025 (0.62)	0.009 (0.22)	0.014 (0.33)	0.014 (0.34)
$ROA_{it}$	2.619*** (11.15)	3.017*** (12.52)		
$ROA_{it} * LIT_{it+1}$	-2.087*** (-5.72)	-1.745*** (-5.31)		
$ROE_{it}$			0.779*** (7.24)	0.778*** (9.04)
$ROE_{it} * LIT_{it+1}$			-0.569*** (-4.60)	-0.533*** (-4.79)
Controls	YES	YES	YES	YES
Constant	7.211*** (20.28)	5.934*** (17.19)	7.180*** (20.03)	5.642*** (16.09)
Ind & Year	YES	YES	YES	YES
Observations	5791	6530	5791	6530
$R^2$	0.429	0.524	0.415	0.511
Diff-Test for the coefficients of $ROA_{it} * LIT_{it+1}$		$\chi^2 = 3.01^*$		
Diff-Test for the coefficients of $ROE_{it} * LIT_{it+1}$				$\chi^2 = 2.89^*$

**Panel B: Non-SOE versus SOE**

Variable	(1) Non-SOE	(2) SOE	(3) Non-SOE	(4) SOE
$LIT_{it+1}$	-0.018 (-0.36)	0.003 (0.08)	-0.008 (-0.17)	-0.008 (-0.21)
$ROA_{it}$	2.763*** (10.87)	2.759*** (11.21)		
$ROA_{it} * LIT_{it+1}$	-2.319*** (-7.07)	-0.654* (-1.89)		
$ROE_{it}$			0.695*** (6.24)	0.742*** (9.07)
$ROE_{it} * LIT_{it+1}$			-0.605*** (-4.56)	-0.378*** (-3.42)
Controls	YES	YES	YES	YES
Constant	5.155*** (11.27)	6.592*** (19.88)	4.921*** (10.60)	6.402*** (19.14)
Ind & Year	YES	YES	YES	YES
Observations	5499	6822	5499	6822
$R^2$	0.454	0.527	0.434	0.516
Diff-Test for the coefficients of $ROA_{it} * LIT_{it+1}$		$\chi^2 = 12.01^{***}$		
Diff-Test for the coefficients of $ROE_{it} * LIT_{it+1}$				$\chi^2 = 3.15^*$

Note: In this table presents the results of the role of the external legal environment. The figures reported in brackets are *t*-statistics, based on standard errors clustered at the firm level. \*\*\* and \* indicate significance at the 1% and 10% levels, respectively.

## 6. Conclusion

In this study, we investigate whether creditors can participate in corporate governance when agency conflict between shareholders and creditors is severe. We examine our research question using creditor litigation data from China, comparing litigation firms and non-litigation firms. We find that firms that have experienced creditor lawsuits have low PPS before lawsuits, suggesting that these firms have weak corporate governance. This result is consistent with the argument that creditors participate in corporate governance by introducing external monitoring when internal monitoring dominated by shareholders is insufficient. We also find that this relationship is stronger in firms with more severe agency conflict between shareholders and creditors. Moreover, creditor litigation is strongly related to low PPS when the external legal environment is stronger. Our results

Table 8  
Alternative Measure of Corporate Governance.

Dep. Var: $Lit_{it+1}$	(1) Abs_DA_adjust	(2) Abs_DA_DD	(3) Opacity
$EarningsOpacity_{it}$	0.150*** (3.96)	0.201*** (4.29)	0.072*** (3.06)
$Size_{it}$	-0.026*** (-6.79)	-0.028*** (-7.10)	-0.033*** (-7.75)
$ROA_{it}$	-0.408*** (-6.33)	-0.391*** (-5.93)	-0.386*** (-5.33)
$Lev_{it}$	0.217*** (10.08)	0.221*** (9.94)	0.219*** (9.19)
$Growth_{it}$	-0.025*** (-2.66)	-0.022** (-2.10)	-0.006 (-0.60)
$Fshr_{it}$	-0.055** (-2.54)	-0.055** (-2.41)	-0.044* (-1.67)
$Mshr_{it}$	-0.077*** (-2.68)	-0.090** (-2.57)	-0.115 (-1.55)
$Bsize_{it}$	0.001 (0.61)	0.002 (0.88)	0.003 (1.42)
$\Delta Sales_{it}$	0.009 (1.52)	0.010 (1.62)	0.009 (1.34)
$RetVol_{it}$	0.293*** (4.32)	0.292*** (4.11)	0.296*** (3.72)
$SOE_{it}$	-0.018** (-2.04)	-0.019** (-2.05)	-0.022** (-2.23)
$Dual_{it}$	0.003 (0.38)	0.003 (0.27)	0.001 (0.10)
Constant	0.642*** (7.66)	0.687*** (7.84)	0.788*** (8.19)
Ind & Year	YES	YES	YES
Observations	12,024	11,164	9396
$R^2$	0.125	0.126	0.124

Note: In this table presents the results of the alternative measure of corporate governance. The figures reported in brackets are *t*-statistics, based on standard errors clustered at the firm level. \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

remain robust to different model specifications, after addressing endogeneity problems, and to the use of an alternative measure of corporate governance.

Our study contributes to the literature in several ways. First, it expands the literature on the interaction between external monitoring based on the legal environment and internal corporate governance. In particular, our study shows that the legal protection of creditors is effective when corporate governance is weak. Second, our study contributes to the literature on the agency problem, in particular on conflicts between shareholders and creditors in China, where this type of agency problem is common. Finally, we contribute to the literature on accounting and law in China's capital market. The legal environment and corporate governance in China, as the largest emerging market, are very different from those in other countries. We extend the literature by providing evidence that monitoring by the legal system in China plays a key role and is effectively introduced by creditors when corporate governance is weak. Our results also have implications to policymakers in that legal environment not only directly affects firm behaviors, but also influences creditors' role in corporate governance.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.



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## Appendix A

See [Tables A1 and A2](#)

Table A1  
The First-Stage Regression Results of PSM.

Variable	(1)
<i>Size<sub>it</sub></i>	−0.148*** (−8.17)
<i>Lev<sub>it</sub></i>	0.682*** (8.21)
<i>ROA<sub>it</sub></i>	−1.891*** (−7.67)
<i>ΔSales<sub>it</sub></i>	0.005 (0.21)
<i>ST<sub>it</sub></i>	0.517*** (8.08)
<i>PPE<sub>it</sub></i>	−0.369*** (−3.05)
<i>WC<sub>it</sub></i>	0.000 (0.01)
<i>Age<sub>it</sub></i>	0.291*** (8.36)
<i>RetVol<sub>it</sub></i>	1.645*** (4.42)
<i>Zscore<sub>it</sub></i>	−0.013*** (−2.63)
Constant	1.503*** (3.59)
Ind & Year	YES
Observations	12,241
<i>R</i> <sup>2</sup>	0.178

Note: In this table presents the first-stage regression results of PSM. The figures reported in brackets are *t*-statistics, based on standard errors clustered at the firm level. \*\*\* indicates significance at the 1% level.

Table A2  
Matching Efficiency for the Variables Used in PSM.

Variable	<i>LIT</i> = 0	<i>LIT</i> = 1	Diff_Test ( <i>p</i> value)
<i>Size</i>	21.325	21.321	0.999
<i>Lev</i>	0.626	0.637	0.103
<i>ROA</i>	0.006	−0.017	0.000***
<i>ΔSales</i>	0.261	0.210	0.088*
<i>PPE</i>	0.261	0.262	0.579
<i>WC</i>	−0.012	−1.020	0.185
<i>Age</i>	2.371	2.376	0.591
<i>RetVol</i>	0.152	0.153	0.518

Note: In this table presents the mean values and the difference in mean values for the matching variables between the treatment sample and the control sample. \*\*\* and \* indicate significance at the 1% and 10% levels, respectively.

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