Auditor Legal Liability and Stock Price Crash Risk: Evidence from Organizational Transformation of Chinese Audit Firms

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ABSTRACT

We utilize Chinese audit firms' organizational transformation to identify the increase in auditors' legal liability and find that after auditors transform into limited liability partnerships (LLPs), their clients demonstrate lower future stock price crash risk. Using the path analysis, we find that accounting conservatism, optimism in management earnings forecasts, and optimism in management discussion and analysis (MD&A) disclosures explain the negative relationship between auditor legal liability and client crash risk. The results are less pronounced for auditors finishing the transformation in an early stage than for auditors subject to the mandatory transformation in 2013, as the former generally has a larger size and higher audit quality before the transformation. Overall, this study complements the existing literature on litigation risk and the auditor's monitoring role in the client information environment.

Keywords: auditor litigation risk; auditor organizational transformation; stock price crash risk; accounting conservatism; management earnings forecasts; MD&A

Data Availability: all data are publicly available

1. INTRODUCTION

Numerous studies have investigated auditor litigation issues after a series of audit failures occurred over the past decade. In a well-developed capital market such as the U.S., auditors are often sued by investors for failing to detect and report client misbehavior regarding information disclosure intended to mislead investors. With the development of the Chinese capital market, Chinese auditors also face growing litigation risk associated with audit failure. In 2014, investors sued Ruihua CPAs (one of the Big 6 accounting firms in China) for failing to uncover financial frauds of their client, Yunnan Greenland Biological Technology Co. Before this, auditors were seldom named as the first defendant in shareholder lawsuits. In the same year, the China Securities Regulatory Commission (CSRC) charged Asia Pacific CPAs a record-high fine of 1.3 million RMB for audit failures in Henan Lianhua Gourmet Powder Co., and shareholders later filed a lawsuit against the CPA firm.[1] These recent cases show not only the enhancement of legal enforcement in China but also the increasing legal exposure for Chinese auditors.

This study investigates whether and how auditor legal liability affects clients' future stock price crash risk, an adverse economic consequence of managerial bad-news-hoarding behaviors. Managers who try to maintain their firms' stock performance would seek to hide unfavorable information from the market (Kim, Li, and Zhang 2011b; Andreou, Louca, and Petrou 2017). Such behavior, however, may provoke a sudden crash in the overvalued stock prices when the accumulated bad news is forced out onto the market. As the ensuing economic damage to investor wealth may increase the likelihood of shareholder lawsuits against firms and auditors (Francis, Philbrick, and Schipper 1994; Lev and De Villiers 1994; Lys and Watts 1994),

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[1] There are more cases since then. For example, two well-known audit failure cases involve BDO China Shu Lun Pan CPAs (BDO China) and their clients Shanghai DZH Ltd. and Geeya Technology Co. Ltd in 2015. The auditors were sued by shareholders and sentenced to assume joint liability for both cases.

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auditors perceiving an increase in litigation risk exposure should have incentives to lower clients' stock price crash risk.

There is evidence that auditors have the incentive to exert greater audit effort to reduce potential litigation risks. Such additional efforts lead to higher audit quality (Pratt and Stice 1994; Bell, Landsman, and Shackelford 2001; Venkataraman, Weber, and Willenborg 2008) and better client financial reporting quality (Boone, Khurana, and Raman 2011; He, Pan, and Tian 2017). Prior studies also suggest that financial reporting quality is negatively associated with crash risk, implying that improved information transparency limits managers' ability to withhold any unfavorable information (Hutton, Marcus, and Tehranian 2009). Therefore, it is reasonable to predict that auditors exposed to greater legal liability could reduce client crash risk by influencing client information disclosure behaviors.

We argue that this can be done through three different channels: (1) accounting conservatism, (2) management earnings forecast optimism, and (3) MD&A disclosure optimism. Auditors value these managerial disclosure behaviors when assessing engagement risk and potential litigation risk (Krishnan, Pevzner, and Sengupta 2012; Defond, Lim, and Zang 2016). On the one hand, studies suggest auditors with greater litigation risk improve their audit quality (e.g., Wang and Dou 2015; He et al. 2017), which will enhance clients' accounting conservatism (Defond et al. 2016). On the other hand, auditors may be responsible for clients' information disclosures beyond financial statements. In practice, Chinese auditors are required to attest clients' voluntary/mandatory earnings forecast and to ensure no material inconsistencies between clients' MD&A disclosures and audited financial statements. Previous studies also show auditors' ability to influence clients' disclosure behaviors in earnings forecasts and MD&A (Clarkson 2000; Ho, Liu, and Schaefer 2010; De Franco, Fogel-Yaari, and Li 2020). Given that more conservative accounting practices and less optimistic disclosures are associated with lower crash risk (Kim and Zhang 2016; Hamm, Li, and Ng 2018), we

hypothesize a negative relationship between auditor legal liability and client crash risk, in which accounting conservatism and optimism in management earnings forecasts and MD&A disclosures serve as mediators.

We exploit an exogenous shock to auditors' legal liability exposure in China to investigate the relationship between auditor legal liability and client crash risk. In 2010, the Chinese government encouraged large and medium registered audit firms to alter their organizational form from a limited liability company (LLC) to a limited liability partnership (LLP). The Chinese government further mandated all audit firms with the qualification to audit listed companies to transform to LLPs by the end of 2013. This organizational transformation largely increased both probabilities and costs of litigation facing auditors, as shareholders could now ask for higher damage compensation from auditors than before the reform. For example, we find that, in our whole sample, the proportion of firms with lawsuits against their auditors increased from 0.61% in 2007 to 6.90% in 2015.

We believe that this auditor organizational transformation in China is a good setting to address our research question. Lennox and Li (2012) argue that with the existence of other institutional mechanisms to protect investors, increasing auditors' legal liability may not have an obvious impact on audit quality in a more developed market. In contrast, it is argued that Chinese capital markets have a less transparent information environment and weaker investor protection regulations (Brockman and Chung 2003; Firth, Mo, and Wong 2012; Cang, Chu, and Lin 2014). Thus, investors have to rely more on the assurance provided by auditors. Accordingly, enhancing auditors' monitoring and information-intermediary role seems to be critical to Chinese capital markets. Therefore, we believe that the Chinese market is a suitable environment in which to examine the role of auditor legal liability in the client information environment.

The result shows that LLP auditors are associated with lower client crash risk than LLC auditors. This negative relationship is both statistically and economically significant. For example, the crash probability of clients audited by LLP firms is approximately 40% lower than that of clients audited by LLC firms. In tests of dynamic changes in crash risk, we further show that client crash risk declines significantly following the year their auditors change organizational form from LLC to LLP. Our main result is consistent with our prediction that increased auditor legal liability reduces client future stock price crash risk.

For robustness checks, we conduct the main test using alternative measures for crash risk, a model specification with firm fixed effects, additional controls for firm and auditor characteristics, and a reduced sample of no auditor turnover. Furthermore, we address the potential confounding effects of time by reperforming the main test with a shorter sample period from 2010 to 2012 (i.e., from the year auditors started to transform to the year before all auditors transformed). The main finding holds for the above robustness tests.

Next, we conduct the path analysis to examine the three aforementioned mechanisms of our main findings. We measure accounting conservatism using Khan and Watts's (2009) conditional conservatism score. For managerial disclosure optimism, we measure the difference between actual earnings and management earnings forecasts and the percentage of negative tone used in MD&A sections of annual reports. Overall, the path analysis result is consistent with our argument, which indicates that auditor legal liability makes clients' accounting practices more conservative and makes management earnings forecasts and MD&A disclosures less optimistic, consequently decreasing clients' crash risk.

Furthermore, since some audit firms finished transformation before 2012 and some audit firms waited until the mandatory transformation after 2012, we conduct our main test and path analysis for subsample where auditors change the form early and subsample where auditors change the form late in 2013, respectively. We find that our main finding holds only for the

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subsample of late changers. As early changers generally are larger in size than late changers, we argue that early changers also have higher audit quality, leading their clients to have lower crash risk before the transformation. Therefore, the effect of transforming to LLP on client crash risk is less prominent for early changers.

Finally, we implement an additional analysis to offer more evidence to support our argument. While no direct evidence exists in the literature, the positive relationship between bad news hoarding and litigation risk is an important premise of our main argument. In other words, because bad news hoarding can trigger shareholder lawsuits against firms and auditors, auditors should attempt to reduce litigation risk by serving a better monitoring role. Therefore, after conducting an empirical test, we find that client crash risk is positively associated with shareholder litigation against firms and auditors. Moreover, this positive relationship is more pronounced for firms audited by LLP auditors. These results allow us to argue that auditors who transformed into LLP form are more likely to monitor clients due to higher litigation-reduction incentives.

Our study adds an incremental contribution to the literature regarding the relationship between auditor legal liability, client information disclosure behaviors, and crash risk. On the one hand, previous studies have suggested that client financial reporting quality increases with auditor litigation risk. Using the same Chinese audit firm setting, Wang and Dou (2015) and He et al. (2017) also show that greater auditor legal liability leads to higher audit quality and lesser earnings management. On the other hand, Hutton et al. (2009) suggest that enhanced financial reporting quality limits managers' ability to hoard information. Therefore, one can infer from the above studies that auditors exposed to greater litigation risk improve audit quality and reduce client crash risk indirectly through enhanced financial reporting quality. Our studies provide evidence in addition to the financial reporting quality mechanism. First, we show that auditors can reduce crash risk by enhancing client accounting conservatism. Different from He

et al. (2007) and Hutton et al. (2009), who use accrual management as the proxy for reporting quality, we argue that accounting conservatism closely reflects managers' timeliness of bad news disclosure. While accrual management and accounting conservatism both are essences of earnings quality, they have different concepts and capture different managerial behaviors.

Second, we show that clients' optimism in earnings forecasts and MD&A disclosures mediates between auditor legal liability and crash risk. Essentially, we attempt to provide new evidence that enhanced audit quality not only affects the presentation of financial statements but also affects clients' other information channels. Little is known about how increased legal liability would affect auditors' role beyond audited financial reporting. Studies such as Krishnan et al. (2012) suggest that auditors view management forecast bias as an increase in litigation risk. Ho et al. (2010) and Ball, Jayaraman, and Shivakumar (2012) find some evidence that auditors may indirectly affect clients' voluntary disclosure. Clarkson (2000) shows that auditors enhance the management forecast accuracy in the cases when audited management forecasts are required. Our study furthers this strand of studies by showing increased auditor litigation risk influences clients' disclosure to be less optimistic, thereby reducing client crash risk. This finding has a policy implication on the debate about whether auditor assurance should extend to voluntary disclosures (e.g., SEC 2002).

This study also contributes to the literature about the auditors' role in their clients' crash risk. Earlier studies suggest that, on average, auditors may have limited ability to detect and uncover managers' bad news hoarding, hence having an insignificant impact on client crash risk. For example, Robin and Zhang (2015) and Callen and Fang (2017) show that only auditors with industry expertise and long client relationships have enough competence to monitor client bad-news-hoarding behavior. However, our study aligns with other studies suggesting that clients' overall information environment facilitates managers' bad-news-hoarding behaviors.

We provide evidence showing that imposing higher legal liability on auditors may indirectly deter clients from bad news hoarding by changing their information environment.

The remainder of this paper proceeds as follows. Section 2 introduces the institutional background and literature reviews, and develops our hypothesis. Section 3 describes our data and sample, variable measurement, and research design. Section 4 presents the results of the baseline model, robustness tests, and the path analysis. Section 5 sets forth the result of the additional analysis. Section 6 spells out our conclusions.

2. RESEARCH BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1. Institutional Background

The Chinese Audit Law, published in 1993, permits audit firms to register in the form of a general partnership (GP) or LLC. These two forms differ in terms of auditor legal liability. While auditors in GPs jointly assume unlimited liability of any other auditors in the firm, auditors in LLCs have limited legal liability to the extent of their capital investment in the firm. However, in both cases, Chinese audit firms face less litigation compared to their developed-market counterparts, because before 1998, almost all were state-owned and government- or university-affiliated (DeFond, Wong, and Li. 2000; Firth et al. 2012).[2] To enhance the legal liability position and independence of audit firms, in 1998, the Ministry of Finance of China (MOF) required audit firms to be disaffiliated with government bodies. Audit firms began to operate like modern ones and assume their own liabilities. Due to the tremendous differences in legal liability between GPs and LLCs, most audit firms chose the latter form. According to Firth et al. (2012), in their sample as of 2004, there were only 7 audit firms in GP form, but 64

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[2] For example, government-affiliated audit firms rely on government bodies for business and the legal liability is usually assumed by the government bodies.

audit firms in LLC form; 144 publicly listed companies were audited by GP audit firms, and 1,009 publicly listed companies were audited by LLC audit firms.

In 2010, the MOF announced an *Interim Provision* to encourage large and medium audit firms to adopt the LLP form. In particular, large audit firms (top 10) should finish the transformation by the end of 2010, and medium audit firms (top 200) are encouraged to complete the transformation by the end of 2011. In January 2012, the MOF and the CSRC further issued a notice that stipulates that audit firms that still retain the LLC structure will lose their qualification to audit listed companies after 2013. One of the purposes of the MOF is to reinforce the legal liability of auditors and improve audit quality. When audit firms are in LLC form, the legal liabilities of both negligent auditors and non-negligent auditors are limited, which may not encourage greater audit effort. In contrast, when audit firms are in LLP form, negligent auditors' legal liabilities are not limited to their capital contribution in the firm; instead, their personal assets are also subject to liability. As a result, the liability of negligent auditors in LLPs is the same as that of negligent auditors in GPs. Among audit firms that provide audit services to publicly listed Chinese companies, two began the transformation into LLP form in 2010, and all of them completed the transformation by 2013 (Wang and Dou 2015; He et al. 2017).

2.2. Literature Review: Auditor Legal Liability

Client litigation risk is an essential issue for auditors, because auditors are often blamed for client reporting misbehavior and are pursued for damages compensation by investors (i.e., the "deep-pocket" theory). Accordingly, auditor litigation risk exposure is positively associated with client litigation risk. For instance, Lys and Watts (1994) find that poor stock performance, large firm size, a qualified audit report, and lack of auditor independence are associated with lawsuits against auditors. Empirical evidence also shows that clients' income-increasing accrual management is positively related to auditor litigation incidence (Heninger 2001; Abbott,

Parker, and Peters 2006). Client accounting conservatism is also viewed as an important litigation risk factor by auditors (DeFond et al. 2016).

Auditors would thus take action or adjust their behaviors to protect themselves from lawsuits. Numerous studies show that auditor reporting conservatism is affected by perceived litigation risk. Auditors tend to issue more modified audit reports when they perceive higher litigation risk. Carcello and Palmrose (1994) find that auditors involved in lawsuits associated with bankrupt clients could take defensive action by issuing timely modified audit reports. Francis and Krishnan (1999) show that the U.S. Big 6 auditors issue more modified audit reports for high-accrual firms to protect themselves from potential litigation. Besides, Geiger, Raghunandan, and Rama (2006) find that fewer going-concern modified reports are issued for bankrupt firms following the passage of the Private Securities Litigation Reform Act of 1995, which largely acts to decrease public firms' legal exposure. Similarly, using a simultaneous equation method, Kaplan and Williams (2013) find that auditor litigation risk is positively associated with the frequency of going-concern modified reports issued to financially distressed clients. Using the audit firms' organizational structure change to identify a shift in auditor litigation exposure in China, Firth et al. (2012) find that general-partnership audit firms (assuming greater litigation risk) are more likely to issue going-concern modified reports to financially distressed clients than limited liability audit firms. Similarly, He et al. (2017) show that after transforming from the LLC form to the LLP form, Chinese auditors tend to issue more modified audit opinions and going-concern opinions. Overall, the findings of the above studies suggest that auditor litigation risk motivates auditors to be more conservative regarding their audit opinions.

On the other hand, auditors exposed to higher litigation risk would invest more audit effort to lower the risk of financial misstatement. Pratt and Stice (1994) suggest that litigation risk leads to additional audit effort, which increases recommended audit fees. Bell et al. (2001)

document that audit hours and audit fees increase with auditors' perception of business risk. Using IPO events as a natural experiment, Venkataraman et al. (2008) find evidence that audit quality and audit fees are both higher for firms in pre-IPO periods (subject to higher litigation risk) than in post-IPO periods. Similarly, DeFond et al. (2016) show that auditors charge lower audit fees, issue fewer going-concern reports when clients are more conservative in financial reporting. In addition, prior studies find significant changes in clients' financial reporting behavior when their auditors face higher litigation risk. For example, Boone et al. (2011) provide evidence that auditors perceiving higher litigation risk restrain their clients from reporting higher abnormal accruals. Wang and Dou (2015) and He et al. (2017) both use Chinese audit firm organizational changes to identify increases in auditor legal liability. They show that after audit firms take the LLP form (assuming higher litigation risk than before), their clients report a smaller absolute value of discretionary accruals. All these studies suggest that higher litigation risk facing auditors is likely to encourage higher audit quality and thus better financial reporting quality.

2.3. Hypothesis Development

We attempt to investigate whether and how auditors operating under greater legal liability influence their clients' future stock price crash risk. Earlier studies (e.g., Jin and Myers 2006; Hutton et al. 2009; Kim et al. 2011b) have suggested that managers' bad-news-hoarding behavior is positively associated with future stock price crash risk. If managers hide bad news from investors, firms' stock prices are overvalued as the prices do not reflect the hidden pieces of negative information. However, when managers hoard the bad news until they are no longer able to hide the news and must release it all at once, the sudden revelation of bad news causes the firm's stock price to crash.

Hutton et al. (2009) show that information opacity measured by accrual management is negatively related to the amount of firm-specific information and positively related to crash

risk. Their findings, to some extent, indicate that managers control information revealed to the market and that an opaque information environment enables managers to shelter negative information, thereby increasing the likelihood of stock prices to crash.

Auditors play an essential role in a firm's information disclosure. Prior studies suggest that auditors perceiving higher litigation risk tend to exert more audit effort and improve clients' financial reporting quality (Bell et al. 2001; Boone et al. 2011; Wang and Dou 2015; He et al. 2017). Given that high reporting quality would limit clients' ability to withhold bad news (Hutton et al. 2009), we predict that auditors encountering increased legal exposure could indirectly reduce client crash risk by enhancing a firm's information environment.

We employ a staggering shock to auditors' legal liability exposure, which is a provision the Chinese MOF issued to require Chinese audit firms to transform their organizational form from LLC to LLP. After the transformation, the auditors' personal assets are exposed to legal liability, so auditors would perceive greater litigation costs than before. From the discussion above, we state our first hypothesis as follows:

Hypothesis 1*: Clients experience declines in future stock price crash risk after their auditors change from the LLC form to the LLP form.*

From the previous studies, one can easily predict that higher audit quality contributes to a less opaque information environment (i.e., better financial reporting quality), which leads to lower stock price crash risk. Besides financial reporting quality, this study argues that auditors may also influence other aspects of clients' information quality. Specifically, we argue that auditor legal liability would be negatively associated with client crash risk due to the impact of auditors on clients' disclosure behaviors, which incorporates (1) accounting conservatism, (2) management earnings forecast optimism, and (3) MD&A disclosure optimism.

Accounting Conservatism

Essentially, accounting conservatism is one aspect of financial reporting quality that constrains managers' overly optimistic disclosure behaviors. Auditors should take client accounting conservatism into account when assessing engagement risk, including litigation risk. Consistent with this view, Defond et al. (2016) show that client accounting conservatism is negatively associated with audit fees, issuance of going-concern opinions, auditor resignations, and the incidence of lawsuits against auditors. We thus argue that auditors with greater legal exposure would have more incentives to enhance client accounting conservatism.

Kim and Zhang (2016) show that conditional accounting conservatism reduces future stock price crash risk. Their finding suggests that early recognition of bad news can mitigate firms' tendency to manage stock performance by hiding unfavorable information from the public. In other words, auditors are likely to be a factor of client crash risk, given their ability to influence client financial reporting conservatism. The above studies form the basis of our argument that auditors exposed to greater legal liability would enhance client accounting conservatism, thus lowering client crash risk.

Hypothesis 2a*: After changing to the LLP form, auditors enhance their clients' accounting conservatism, which lowers clients' future stock price crash risk.*

Management Earnings Forecast Optimism

Besides financial statements, management earnings forecast is also an important channel through which managers release information to investors. However, biased management forecasts may increase the risk of firms being sued for misleading information. The literature suggests that auditors pay attention to firms' earnings forecasts. For example, Clarkson (2000) shows that due to litigation reduction and reputation protection purposes, Big 6 auditors are associated with smaller management forecast errors than non-Big 6 auditors in the audit-level assurance regime for the IPO offering prospectus in Canada. Krishnan et al. (2012) suggest that

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auditors view forecast optimism as a signal of managerial aggressiveness or overconfidence that increases engagement risk.

In addition, previous studies provide evidence showing that auditors can constrain management forecast bias. Ho et al. (2010) find that while auditors gain more knowledge of firms and constrain managers' ability to manage earnings, managers would become more conservative in earnings guidance to prevent negative earnings surprises. Ball et al. (2012) find that firms committing more resources to audited financial statements (i.e., audit fees) are also likely to provide more frequent, specific, timely, and accurate management forecasts. They argue that managers would make more credible disclosures when they know there will be a quality audit of actual financial outcomes.

The Chinese government has issued regulations that clearly state auditors' liability for clients' earnings forecasts. According to the CSRC Regulation No. 212 (2007),[3] firms may provide earnings forecasts along with the filing of annual reports, but the earnings forecasts should be attested by qualified public accounting firms.[4] The CSRC also requires management earnings forecasts to be attested by auditors in the cases when the earnings forecasts are mandatory, e.g., earnings forecasts provided for IPO prospectuses and asset exchanges (Yao 2016). In all cases, auditors have joint liability for untrue and misleading earnings forecasts. Thus, when facing increasing litigation risk, auditors should be more cautious with management forecasts.

Collectively, the studies above suggest that auditors consider litigation risk as an increasing function of management forecast optimism. To reduce potential legal liability,

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[3] See Standards Concerning the Contents and Formats of Information Disclosure by Companies Offering Securities to the Public No. 2 - Contents and Formats of Annual Reports. The regulation can be accessed from http://www.csrc.gov.cn/pub/shenzhen/xxfw/tzzsyd/ssgs/ssxxpl/ssplxx/200902/t20090226_95552.htm (in Chinese).

[4] The CPA attestation of management earnings forecasts in annual reports is no longer required in the amended regulations in 2012 (CSRC No. 22). See the regulation at: http://www.csrc.gov.cn/pub/newsite/flb/flfg/bmgf/xxpl/xxplnr/201310/t20131017_236414.html (in Chinese).

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auditors will try to influence managers' forecasts directly or influence managers' forecasts indirectly by increasing audit quality. Furthermore, evidence shows that management forecast optimism is positively associated with future crash risk (Hamm et al. 2018), implying that investors are less likely to be misguided by less optimistic forecasts. Therefore, we argue that higher auditor litigation risk is associated with less optimistic management forecasts, hence lower crash risk.

Hypothesis 2b*: After changing to the LLP form, auditors decrease their clients' optimism in earnings forecasts, which lowers clients' future stock price crash risk.*

MD&A Disclosure Optimism

Next, we consider the MD&A section in the annual report as another important channel of information disclosures. In the MD&A section, firms are required to disclose information that is material to both current and future operations and provide discussions and analyses on audited financial items such as revenues and earnings. Auditors, however, only review the MD&A and are not obligated to provide assurance for the MD&A.

Nevertheless, in the U.S., the Statements on Auditing Standards (SAS) No. 8 requires auditors to determine whether the information disclosed in the MD&A is not *materially inconsistent* with the audited financial statements. The Chinese auditing standards have the same requirement for auditors to review clients' information disclosed in MD&A. Once auditors find material inconsistencies, they should ask their clients to provide supporting evidence, and they need to judge whether there are material misstatements.[5] The auditing standard suggests that auditors are also responsible for the items disclosed in the MD&A. Besides, evidence shows that auditors impact the MD&A style. For example, De Franco et al.

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[5] See the Chinese Institute of Certified Public Accountant (CICPA) Auditing Standard No. 1521: The Responsibility of CICPA for Other Information.

(2020) find that clients sharing the same auditors have MD&As with similar textual content. Therefore, we argue that MD&A disclosures could be affected by the auditor scrutiny. In other words, auditors with a stronger intention to reduce litigation risk are likely to encourage a more conservative style of MD&A, thereby reducing future crash risk.

Hypothesis 2c*: After changing to the LLP form, auditors decrease their clients' optimism in MD&A disclosures, which lowers clients' future stock price crash risk.*

3. EMPIRICAL DESIGN

3.1. Measures of Stock Price Crash Risk

Following previous studies (e.g., Chen, Hong, and Stein 2001; Hutton et al. 2009; Kim, Li, and Zhang 2011a; 2011b; Callen and Fang 2013), we construct two measures of stock price crash risk. We begin by estimating firm-specific weekly returns (W) for each firm and year from the following expanded market model regression:

$$r_{i,\tau} = \alpha_i + \beta_{1i} r_{m,\tau-2} + \beta_{2i} r_{m,\tau-1} + \beta_{3i} r_{m,\tau} + \beta_{4i} r_{m,\tau+1} + \beta_{5i} r_{m,\tau+2} + \varepsilon_{i,\tau}, \qquad (1)$$

where $r_{i,\tau}$ is the return on stock i in week τ, and $r_{m,\tau}$ is the return on the value-weighted market index in week τ. The two-week lead and two-week lag terms for the market index return are included. The firm-specific weekly return for stock i in week τ, $W_{i,\tau}$, is then computed as the natural logarithm of 1 plus the residual in Equation (1).

Following convention, our first measure of stock price crash risk, *NCSKEW*, is negative conditional return skewness. The calculation is specified as follows:

$$NCSKEW_{i,t} = -\left[n(n-1)^{3/2} \sum W_{i,\tau}^3 \right] / \left[(n-1)(n-2)(\sum W_{i,\tau}^2)^{3/2} \right]. \qquad (2)$$

As shown in Equation (2), *NCSKEW* for firm i in year t is the negative of the third moment of firm-specific weekly returns for year t, divided by the standard deviation of firm-specific weekly returns raised to the third power. A higher value of *NCSKEW* means that the firm's shares are more crash-prone.

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The second measure of stock price crash risk, *DUVOL*, is down-to-up volatility. Specifically, for each firm *i* in year *t*, we separate all the weeks with firm-specific weekly returns below the annual mean (down weeks) from those with firm-specific weekly returns above the annual mean (up weeks) and calculate the standard deviation of firm-specific weekly returns for each subsample. *DUVOL* is then the logarithm of the ratio of the standard deviation of the down weeks to the standard deviation of the up weeks. The calculation is specified as follows:

$$DUVOL_{i,t} = \log\{(n_u - 1) \sum_{Down} R_{i,\tau}^2 \, / \, (n_d - 1) \sum_{Up} R_{i,\tau}^2 \}, \qquad (3)$$

where n_u and n_d are the number of up and down weeks over year t, respectively. A higher *DUVOL* means that the firm's shares are more crash-prone. As argued in previous studies, compared to the first measure, this alternative measure is relatively free from outlier bias caused by a small number of extreme returns (e.g., Callen and Fang 2013).

3.2. Empirical Model

Following He et al. (2017), we examine whether client future stock price crash risk is affected by the organizational transformation of their auditors. Specifically, we estimate the following regression model:

$$CrashRisk_{i,t+1} = \alpha_0 + \beta_1 LLP_{j,t} + \gamma' Controls_{i,t} + Year\ Fixed\ Effects$$
$$+ Industry\ Fixed\ Effects + Audit\ Firm\ Fixed\ Effects + \varepsilon_{i,t}, \qquad (4)$$

where *CrashRisk* incorporates the two crash-risk measures mentioned in Section 3.1; *LLP* is the dummy variable and equals one if the firm is audited by audit firm *j*, which takes the form LLP, and zero otherwise. In this baseline regression, we examine the effect of the auditor's organizational form in year *t* on client *i*'s crash risk measured in year *t*+1. To determine whether an audit firm has adopted the LLP form, we manually check the names of audit firms shown in audit reports. Precisely, if the name contains "LLP," we classify that audit firm as an LLP; otherwise, it is considered an LLC. Similar to He et al. (2017), we also cross-check our classification by searching all relevant news reports from the web pages of audit firms, the

Chinese Institution of Certified Public Account, as well as the Department of Finance for each province and provincial-level municipality. If any news report about an audit firm contains any language such as "has completed the structural transformation from LLC to LLP" or "authorized to set up as LLP," we classify that audit firm as an LLP.

Following previous studies, we include a set of control variables. We first include lagged *NCSKEW* to control for the persistence of crash risk. Chen et al. (2001) find that past returns and return volatility can predict future crash risk, so we include average weekly returns (*RET*), the standard deviation of weekly returns (*SIGMA*), and change in average monthly turnover (*DTURN*) in our regression. We also control for firm characteristics such as the natural log of total assets (*SIZE*), financial leverage (*LEV*), return on assets (*ROA*), market-to-book ratio (*MB*), and audit firm size measured by Big 4 auditors (*BIG4*).

Hutton et al. (2019) use accrual management as the proxy for financial opacity and suggest that financial opacity is related to managers' ability to hide information. We argue that accounting conservatism serves as one of the channels beyond financial opacity through which auditors affect client crash risk. Notably, accounting conservatism reflects the timeliness of bad news being recognized into earnings and hence directly related to managers' ability to hide bad news. While accounting conservatism and accrual management are two separate aspects of earnings quality, they may be highly correlated. Therefore, we control for firms' financial opacity (*OPAQUE*) measured by the three-year moving sum of absolute discretionary accruals in our regression model.

In addition, Kim et al. (2011b) and Callen and Fang (2013) document an effect of external monitoring from institutional investors on firms' bad news hiding behavior. We thus include institutional ownership (*IO*) in the regression. Kim and Zhang (2016) suggest that information asymmetries proxied by analyst coverage play an important role in predicting future crash risk.

Therefore, we control for the number of analysts following (*ANA*). Appendix A offers detailed definitions for all variables.

Finally, year fixed effects and industry fixed effects are included in each regression. When the MOF announced the *Interim Provision*, some auditors may have foreseen an increase in their legal liabilities after transformation to the LLP form and thus resigned from engagements with high-risk clients. In addition, some auditors voluntarily completed the organizational transformation earlier than others, which may be driven by specific auditor characteristics, e.g., auditor size and local condition.[6] Therefore, we also include auditor fixed effects to control for time-invariant omitted auditor characteristics.

3.3. Data and Sample Selection

Our initial sample consists of all Chinese A-share firms listed on the Shanghai and Shenzhen stock exchanges from 2007 to 2015 that are covered by the China Securities Markets and Accounting Research (CSMAR) database. Our sample period starts from 2007 to alleviate the impact of the alterations to the Chinese Enterprises Accounting Standard, Chinese Enterprises Auditing Standard, and the Split Share Structure Reform. Also, because Chinese auditors were undergoing the organizational transformation from 2010 to 2013, our sample period enables us to compare firms' behavioral changes before and after the auditor organizational transformation. From the initial 19,788 observations, we delete firms in the financial industry because they are strictly regulated. Then, we delete the IPO year of newly listed firms during our sample period to avoid the first-year effect on auditor decision-making. Following previous studies, we also delete 1,054 observations with "special treatment" (ST).[7] After deleting 1,614 observations that do not have sufficient data to calculate the variables included in the crash risk model, we

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[6] For example, RSM China and BDO China Shu Lun Pan both transformed from LLCs to LLPs in late 2010, while most audit firms, including KPMG, Ernst & Young, and Deloitte & Touche completed the transformation after August 2012 (Wang and Dou 2015).

[7] In China, listed firms will get ST if they report negative income for two consecutive years. If they further report net losses in the third year, they will be delisted. Studies on the Chinese capital market usually exclude these ST observations because the operation condition during the ST period is abnormal.

end up with a sample of 15,368 observations. Panel A of Table 1 reports the sample selection procedure.

[Insert Table 1 Here]

4. EMPIRICAL RESULT

4.1. Descriptive Statistics and Correlation

Panel B of Table 1 reports descriptive statistics for four crash measures and the distribution of audit firm organizational form across the study period. As shown in the third and the fourth columns, the means of *NCSKEW* and *DUVOL* in our sample are −0.319 and −0.224, respectively, comparable in magnitude to those reported in prior studies focusing on the Chinese market (e.g., Xu, Li, Yuan, and Chan 2014). The fifth column shows the percentage of firms whose audit service is provided by LLP audit firms in our sample by year. The percentage is 0 before 2010, 13.6% in 2010, 28.4% in 2011, and 66.2% in 2012. Finally, by 2013, all audit firms have transformed into LLPs. This pattern reflects the fact that some audit firms chose to finish the transformation immediately following the release of the Interim Provision, and some audit firms chose to remain under the LLC structure until the deadline.

Panel A of Table 2 reports summary statistics for our key variables. The average size of our sample firms is 21.8, approximately equal to 294 million yuan. The financial leverage is 46.3%, ROA is 4.5%, and the market-to-book ratio is 3.5. These characteristics of our sample firms are also comparable to those of previous studies such as Xu et al. (2014) and Wang and Dou (2015), suggesting that the firms in our sample are, on average, large, profitable, and have high growth opportunities. Panel B reports pairwise Pearson correlation coefficients of our variables. Our two crash risk measures are highly correlated at the 5% significance level. For example, *NCSKEW* is 88% correlated with *DUVOL*. In addition, we find that *LLP* is negatively associated with the two crash risk measures. Since other factors such as firm characteristics

and corporate governance may also be correlated to crash risk and potentially confound our result, we provide the result of multivariate analysis controlling for these factors in Section 4.2.

[Insert Table 2 Here]

4.2. Auditor Litigation Risk and Client Firm Crash Risk

The first two columns of Table 3 report the result of our baseline model, Equation (4). After controlling for stock return and firm characteristics, we find that the coefficients on *LLP* are significantly negative for both crash risk measures (i.e., the coefficients are −0.082 and −0.053, respectively; the t-statistics are −3.743 and −3.587, respectively). This result suggests that client firms audited by LLP audit firms have lower future crash risk than client firms audited by LLC audit firms.

[Insert Table 3 Here]

Next, we use dummy variables to indicate the pre- and post-years of the organizational transformation from LLC to LLP of audit firms. *Year −1*, *Year 0*, *Year 1*, and *Year 2+* are equal to one if the year is the preceding year of the transformation, the transformation year, the first year following the transformation, and the second year and onwards following the transformation, respectively, and zero otherwise. By using these dummy variables in the regression, we examine the dynamic changes in crash risk before and after the organizational transformation of the audit firm. In columns (3) and (4) of Table 3, the coefficients on *Year −1* are all insignificant. In contrast, the coefficients on *Year 0*, *Year 1*, and *Year 2+* are all negative and significant. For instance, for the result of *NCSKEW*, the coefficients (t-statistics) on *Year -1*, *Year 0*, *Year 1*, and *Year 2+* are −0.025 (−1.004), −0.102 (−3.588), −0.118 (−3.481), and −0.123 (−3.102), respectively. This result suggests that clients' crash risk declines significantly after their auditors transform from LLC to LLP.

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4.3. Robustness Tests

4.3.1. Alternative Measures of Crash Risk

For robustness, we consider alternative measures for future stock price crash risk. The first alternative measure, *CRASH*, is a dummy variable equal to one if firm *i* experiences at least one crash week during year *t*, and zero otherwise. Following the definition of Hutton et al. (2009) and Callen and Fang (2013), a crash week is defined as a week during which the firm has firm-specific weekly return 3.09 standard deviations below the mean value of firm-specific weekly returns over the year, with 3.09 chosen to generate frequencies of 0.1% in the normal distribution. When using *CRASH* as the measure of crash risk, we estimate the logit regression of our baseline model.

The second measure of stock price crash risk, *CRASH_FRE*, is the ratio of the number of firm-specific weekly returns exceeding 3.09 standard deviations below the mean firm-specific weekly return to the total number of trading weeks over the year.

Following Hutton et al. (2009) and Kim et al. (2016), when estimating firm-specific weekly returns (*W*), we further control for industry factors and modify Equation (1) as follows:

$$r_{i,\tau} = \alpha_i + \beta_{1i}r_{m,\tau-1} + \beta_{2i}r_{m,\tau} + \beta_{3i}r_{m,\tau+1} + \beta_{4i}r_{ind,\tau-1} + \beta_{5i}r_{ind,\tau}$$
$$+\beta_{6i}r_{ind,\tau+1} + \varepsilon_{i,\tau}, \tag{5}$$

where $r_{ind,t}$ is the return on the value-weighted industry index in week τ. The firm-specific weekly return for stock *i* in week *t*, $W_{i,t}$, is then computed as the natural logarithm of 1 plus the residual in Equation (5). The next four alternative crash risk measures, *NCSKEW_IND*, *DUVOL_IND*, *CRASH_IND*, and *CRASH_FRE_IND*, are then constructed based on this alternative firm-specific weekly return.

Panel A of Table 4 presents test results from using alternative measures for crash risk. The result is qualitatively unchanged, indicating that firms audited by LLP audit firms have significantly lower crash risk. Our finding is also economically significant. The calculation

from column (1) suggests that firms audited by LLP audit firms have an approximately 40% lower probability of stock price crashes than firms audited by LLC audit firms.[8]

[Insert Table 4 Here]

4.3.2. *Alternative Explanations*

Although we adopt an exogenous regulatory change as the proxy for the increase in auditor legal liability, there is still a concern that the result reported in Table 3 may not necessarily prove that auditor legal liability reduces client crash risk. For example, some auditor characteristics or firm characteristics may cause auditors to transform earlier than other auditors, and that characteristics also lead to declines in client crash risk. In addition, auditors perceiving high risk could simply lower the risk by adjusting their client portfolio, e.g., getting rid of risky clients and admitting less risky clients. In other words, auditors may not necessarily act to improve client information disclosure. They can choose to resign when they are aware that the engagement risk will increase. In such a case, clients would not experience any change in crash risk after their auditors transform from LLC to LLP.

To mitigate the above concerns, we conduct the following three robustness tests: (1) estimating the regression model with firm fixed effects; (2) including additional control variables; and (3) excluding firms with auditor turnovers in our sample period.

First, we control for potential omitted time-invariant firm characteristics. Panel B of Table 4 reports the test result of a regression model with the firm-fixed-effect specification. For brevity, we hereafter report the result for all robustness tests with the first four crash risk measures, i.e., *NCSKEW*, *DUVOL*, *CRASH*, and *CRASH_FRE*. The result is similar to our main finding, suggesting a negative and significant relationship between LLP and crash risk.

In Panel C of Table 4, we control for several identifiable auditor and firm characteristics. The prior literature suggests that corporate governance mechanisms, such as foreign

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[8] 40% $\cong$ 1 / (1+ exp (−(−0.386))).

institutional ownership, ownership structure, and board characteristics, have a profound impact on information disclosure of Chinese listed firms (e.g., Chen, Firth, Gao, and Rui 2006; Xiao and Yuan 2007; Gul, Kim, and Qiu 2010; Huang and Zhu 2015). Accordingly, we include additional control variables as follows: issuance of H-shares or B-shares (*FOREIGN*); state ownership (*SOE*); the percentage of shares held by controlling shareholders (*OWNER*); board size (*BOARD*); the percentage of independent directors on the board (*INDEP*); CEO also serves as chair of the board (*DUAL*); and the percentage of shares held by the firm's top executives (*EO*). On the other hand, high-quality and experienced auditors are more competent in governing firms' bad-news-hoarding behavior (Robin and Zhang 2015; Callen and Fang 2017). Therefore, we include additional variables to control for auditor characteristics: auditor tenure (*TENURE*) and industry-specialist auditors (*SPECIALIST*).

Finally, to address the concern over confounding effects from auditor turnover, we require our sample firms to be unchanged with respect to auditor appointments. In Panel D of Table 4, we perform the main test with the sample, excluding auditor turnover during our sample period.

Overall, the results of the above robustness tests are qualitatively similar to our main finding. Accordingly, we are more confident that the reported negative relationship between auditor legal liability and firm future stock crash risk supports our argument that auditor legal liability reduces client crash risk.

4.3.3. Sub-period Test

Panel B of Table 1 indicates that our sample firms are all audited by LLC audit firms for the period 2007 through 2009, and are all audited by LLP audit firms for the period 2013 through 2015. One may be concerned that our finding is driven mainly by unobservable time effects other than auditor organizational transformation, e.g., market conditions in the period 2007–2009 may be somewhat different from those in the period 2013–2015. Besides, some may also be concerned that the global financial crisis starting from 2008 would have its impact on both

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auditors and firms. The financial crisis hit the Chinese financial market and severely affected many firms' operations and viability, which causes the issue that our results may simply capture more conservative behaviors of auditors or firms after the crisis rather than the effect of auditor legal liability on client crash risk.

Therefore, to further verify our result, we perform the same test for a shorter sample period from 2010 through 2012, in which some audit firms have started to transform to LLPs, while some audit firms remained as LLCs. With this shorter sample period, we rule out potential confounding time effects resulted from a long time span. We also ensure that our sample period only covers the post-crisis period so that our result is less likely to capture the change in the institutional environment and reporting behavior due to the crisis. Panel E of Table 4 presents the result. For this sub-period, our main findings continue to show a negative relationship between *LLP* and crash risk.[9]

4.4. Path Analysis

We hypothesize that besides financial reporting quality, there are other channels, i.e., accounting conservatism, management earnings forecast optimism, and MD&A disclosure optimism, through which auditor legal liability affects client crash risk. To deliver empirical evidence supporting this hypothesis, we adopt the path analysis (or mediation analysis) advocated in Preacher and Hayes (2008) and Hayes and Scharkow (2013).[10] The purpose of this analysis is to investigate whether auditor legal liability affects client crash risk through potential mediators.

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[9] We also conduct a falsification test, in which we randomly assign the transformation year to each auditor and reperform our main test. We repeat this process 1,000 times and obtain the coefficients on *LLP*. We find that the mean and the median of the coefficient is negative but insignificant (Mean = −0.004, t-stat = −0.199; Median = −0.004, t-stat = −0.209). The result alleviates the concern that other changes in the reporting environment are occurring at around the same time as the auditor organizational transformation.

[10] The path analysis is widely used in accounting and some other business-related fields to show the indirect effect of the independent variable on the dependent variable via the mediators (e.g., Bhattacharya, Ecker, Olsson, and Schipper 2012; DeFond et al. 2016; Robin and Zhang 2015).

Our first mediator, accounting conservatism (*CSCORE*), is the firm-specific asymmetric timeliness score developed by Khan and Watts (2009). The detailed estimation of *CSCORE* is provided in Appendix B. A greater *CSCORE* represents a more timely manner for recognizing negative news, hence more conservative financial reporting. The second mediator is management forecast pessimism (*GUIDEPES*), which is the difference between actual earnings and management earnings forecasts, divided by the market value of equity. A higher value of *GUIDEPES* is associated with less optimistic management earnings forecasts. The last mediator is the MD&A pessimism (*MD&APES*). We retrieve annual reports of the sample firms from the WIND database and then extract the MD&A section from each annual report. Following Loughran and McDonald (2011), we identify the tone of the words used in MD&As. *MD&APES* is then calculated as the number of negative words minus the number of positive words, divided by the sum of negative and positive words in the MD&A section. Accordingly, a higher *MD&APES* is related to a less optimistic tone used in the MD&A.

Figure 1 illustrates the direct and indirect paths in our model for the path analysis. The coefficient on the direct path (P_d) stands for the direct effect of *LLP* on crash risk measures. The mediated paths (P_{11}–P_{12}, P_{21}–P_{22}, and P_{31}–P_{32}) go from *LLP* to crash risk through the three mediators mentioned above. We argue that under greater legal exposure, auditors are more likely to put more effort into audit, thereby enhancing their clients' accounting conservatism and negatively affecting their clients' optimism in earnings forecasts and MD&A disclosures. To support this argument, the coefficients on the paths from *LLP* to the three mediators should be positive. On the other hand, enhanced accounting conservatism and reduced disclosure optimism would reduce crash risk; therefore, the coefficients on the paths from the three mediators to crash risk should be negative.

[Insert Figure 1 Here]

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Table 5 presents the result of the path analysis where we estimate the coefficients of the three paths simultaneously.[11] P_{11}, P_{21}, and P_{31} are significantly positive, consistent with the prediction above that auditor legal liability leads to more accounting conservatism and less optimistic management forecasts and MD&A disclosures. In contrast, P_{12}, P_{22}, and P_{32} are significantly negative, suggesting that more conservative accounting practices and less optimistic disclosures are related to lower crash risk.

The coefficients on the total mediated paths show the mediation effects of the three channels on the relationship between auditor legal liability and client crash risk. The result shows that total mediated paths for *CSCORE* ($P_{11} \times P_{12}$), *GUIDEPES* ($P_{21} \times P_{22}$), and *MD&APES* ($P_{31} \times P_{32}$) all have negative and significant coefficients. The result supports our hypothesis, suggesting that auditor legal liability reduces client crash risk indirectly through the mechanism of accounting conservatism, management forecast optimism, and MD&A disclosure optimism.

[Insert Table 5 Here]

4.5. Early vs. Late Organizational Form Changers

In the 2010 *Interim Provision*, the Chinese MOF initially encouraged large and medium audit firms to finish the transformation. Most large and medium local accounting firms such as BDO China Shu Lun Pan CPAs, Ruihua CPAs, Pan-China CPAs, and Da Hua CPAs changed from the LLC form to the LLP form by 2011. The Big 4 CPAs also transformed in 2012. However, in 2012, the MOF and the CSRC issued an ultimatum, demanding unchanged audit firms to finish the transformation by the end of 2013.

Since audit firms who change at different times may have different reasons, we perform our main tests separately for audit firms who transform early and the rest who are mandated to

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[11] An untabulated test shows that the pairwise correlation between the three mediators is low (around 2%-4%), mitigating the concern that the potential correlation among the three mediators may generate biased estimates.

transform late in 2013. Early changers may follow the policy to pursue the development of business. First, the LLC form prevents an audit firm from further growth. As the Chinese Corporate Law puts a 50-people limit on the number of shareholders of an LLC, this limitation would be a drawback for an audit firm's long-term human capital development. Second, LLC suffers from double-taxation issues, i.e., income is taxed twice at the company and shareholder levels. Therefore, the audit firms who change early may self-select into transformation. Besides, early changers are, on average, larger than late changers. Larger audit firms are more capable of providing quality audit and influencing clients' information environment (DeFond and Zhang 2014), which might have led their clients to have lower crash risk prior to the transformation. Collectively, the negative relationship between auditor legal liability and client crash risk we find earlier may be less pronounced for early changers.

Table 6 presents our baseline test result for the early changer and late changer subsamples, respectively. Firms included in the sample are required to stay with the same auditor over the entire sample period. The early changer subsample includes firms whose auditors transform over the period 2010-2012, while the late changer subsample includes firms whose auditors transform in 2013. Consistent with our above prediction, we find that the coefficients on *LLP* are negative and significant only for the subsample of late changers (columns (5) and (6)). The coefficients on *Year 1* and *Year 2+* are also negative and significant only for the subsample of late changers (columns (7) and (8)), suggesting that firms in the subsample of late changers experience significant declines in crash risk after their auditors change the form. This phenomenon, however, is not observed for the subsample of early changers.

[Insert Table 6 Here]

We also conduct the path analysis for the early changer and late changer subsamples, respectively. The result is presented in Table 7. For the subsample of early changers, we find that only the mediation effect of accounting conservatism ($P_{11} \times P_{12}$) is significant, while the

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mediation effects of management forecast optimism and MD&A disclosure optimism ($P_{21} \times P_{22}$ and $P_{31} \times P_{32}$) are insignificant. In contrast, for the subsample of late changers, the mediation effects of the three mechanisms are all significant.

[Insert Table 7 Here]

Overall, the results in Tables 6 and 7 support our prediction. Compared to auditors who transform mandatorily in 2013, auditors who have transformed early generally have higher audit quality, leading their clients to have better financial reporting quality before the transformation. Therefore, the improvements in audit quality and client information environments are less pronounced for firms audited by early changers than for firms audited by late changers.

5. ADDITIONAL ANALYSIS

We argue that auditors exposed to greater legal liability pay more attention to clients' information disclosure behavior, as they need to protect themselves from greater litigation costs after organizational transformation from LLC to LLP. However, the empirical evidence of whether Chinese auditors encounter higher litigation incidence following organizational transformation is still lacking. In addition, one critical premise of our argument is that clients' information disclosure behaviors are associated with the incidence of shareholder litigations; however, the literature is inconclusive on this issue. [12] This section provides additional evidence to support our main argument.

We collect, from the CSMAR database, lawsuits against firms or auditors due to financial misreporting issues. First, in Panel B of Table 1, we present the litigation incidence of Chinese

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[12] For example, Skinner (1997) documents a positive relationship between timely disclosure and litigation incidence. Johnson, Kelson, and Pritchard (2007) find that voluntary earnings forecasts and positive or negative news lead to higher litigation probabilities. However, some studies (e.g., Field et al. 2005; Donelson, McInnis, Mergenthaler, and Yu 2012) find that timely bad news disclosures, such as earnings warnings, reduce the possibility of lawsuits after controlling for the firm's ex ante litigation risk.

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auditors during the sample period. The statistics show that the probability of being sued is around 1.06% in 2009 and 3.10% in 2013, giving us more confidence to argue that Chinese auditors would perceive greater litigation risk after the organizational transformation. We then examine whether client crash risk is associated with the likelihood of subsequent lawsuits. Following Kim and Skinner (2012), we control for the following stock characteristics that are significantly associated with litigation incidence: logarithm of total assets (*SIZE*); sales growth (*GROWTH*); return on assets (*ROA*); bankruptcy likelihood (*ZSCORE*); mean returns over the year (*RET*); the standard deviation of stock returns (*SIGMA*); stock turnover (*TURN*); institutional ownership (*IO*); and discretionary accruals (*ABACC*). Definitions of the control variables in the model are detailed in Appendix A.

Table 8 presents the results. The result of Model (1) reveals that *NCSKEW* is significantly positively associated with lawsuit incidence, supporting our argument that stock price crash risk is positively associated with litigation risk. Model (2) further shows the effect of auditor organizational transformation on the likelihood of lawsuits. The coefficients on *LLP* and *NCSKEW × LLP* are both positive and significant. Taken together, these results confirm our prediction that firm bad-news-hoarding behavior may trigger shareholder litigation and that this positive relationship is more pronounced for firms audited by *LLP* auditors. Therefore, our main finding is most likely to result from auditor incentives to monitor client information disclosure in order to protect themselves from litigation risk.

[Insert Table 8 Here]

6. CONCLUSION

Auditor litigation risk has long been studied, as so-called deep pockets make auditors a potential target of lawsuits. This study argues that auditors exposed to increased litigation risk influence clients' information disclosures, thereby reducing clients' crash risk. Using the

organizational transformation of Chinese audit firms as the exogenous shock to auditor legal liability, our main finding suggests that clients audited by LLP auditors have lower stock price crash risk than clients audited by LLC auditors. We also conduct the path analysis to offer evidence on the mechanisms for our main finding. We show that increased legal liability increases auditors' tendency to make clients' accounting practices, earnings forecasts, and MD&A disclosures more conservative, consequently reducing clients' crash risk.

Overall, this study contributes to the literature by proving that auditor legal liability indirectly reduces client crash risk through the channels of accounting conservatism and managerial disclosure optimism. Our findings complement existing empirical evidence with regard to the auditor monitoring role in client information disclosure. Given that bad-news-hoarding behavior causes adverse economic consequences in the capital markets, our findings have important implications for both policymakers and investors.

However, this study is subject to the limitation of no direct evidence that auditors monitor and uncover clients' bad-news-hoarding behaviors. In most of the audit failure cases, auditors are often accused of failing to detect managers' misreporting or misleading disclosure behaviors. Thus, whether increases in auditors' legal liability exposure can encourage auditors to put effort into uncovering bad-news-hoarding behaviors could be of interest not only to investors but also to policymakers. Future research could examine whether there is a direct effect of auditor litigation risk on clients' bad-news-hoarding behaviors.
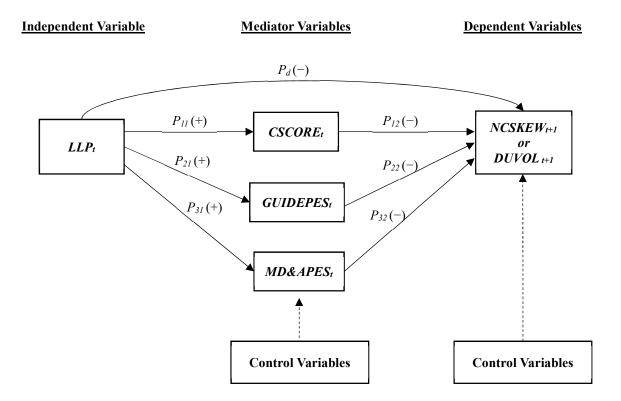
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Figure 1 Path Analysis

<u>Independent Variable</u>   <u>Mediator Variables</u>   <u>Dependent Variables</u>

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Table 1 Sample Description

Panel A describes the sample selection procedure. Panel B presents the sample distribution and mean values of crash risk and auditor's organizational form across the years from 2007 to 2015. All variables are defined in Appendix A.

Panel A: Sample Selection

	Number of Observations
Firm-year observations with total A-share listed companies from the CSMAR database during 2007-2015	19,788
Less:	
Firms in finance industries	(341)
IPO years of IPO firms	(1,411)
Observations of specially treated firm-years	(1,054)
Observations with missing values in all variables in Equation (4)	(1,614)
Final sample	15,368

Panel B: Sample Distribution and Mean Value of Main Variables by Year

Year	N	NCSKEW	DUVOL	LLP	LAWSUIT (%)
2007	1,146	-0.211	-0.163	0	0.61
2008	1,225	-0.074	-0.037	0	0.81
2009	1,322	-0.523	-0.400	0	1.06
2010	1,383	-0.191	-0.141	0.136	1.01
2011	1,498	-0.256	-0.190	0.284	1.54
2012	1,882	-0.338	-0.221	0.662	2.07
2013	2,192	-0.462	-0.306	1	3.10
2014	2,358	-0.428	-0.284	1	4.03
2015	2,362	-0.242	-0.185	1	6.90
Total	15,368	-0.319	-0.224	0.450	2.82

Table 2 Descriptive Statistics

Panel A presents descriptive statistics of key variables of interest used in the crash risk model for the sample of firms included in our study. *, **, and *** indicate statistical significance in two-tailed tests at the 10 percent, 5 percent, and 1 percent levels, respectively. Panel B presents the pairwise Pearson correlation coefficients between variables. * indicate statistical significance in two-tailed tests at the 5 percent levels. All variables are defined in Appendix A.

Panel A: Summary Statistics

Variables	N	Mean	Std	25%	Median	75%
$NCSKEW_{t+1}$	15,368	-0.319	0.666	-0.680	-0.281	0.087
$DUVOL_{t+1}$	15,368	-0.224	0.465	-0.533	-0.218	0.087
LLP_t	15,368	0.450	0.497	0.000	0.000	1.000
$NCSKEW_t$	15,368	-0.336	0.659	-0.691	-0.292	0.072
$DTURN_t$	15,368	-0.017	0.332	-0.174	-0.007	0.145
$SIGMA_t$	15,368	0.048	0.016	0.036	0.046	0.057
RET_t	15,368	-0.001	0.001	-0.002	-0.001	-0.001
$SIZE_t$	15,368	21.836	1.213	20.954	21.678	22.536
LEV_t	15,368	0.463	0.207	0.304	0.473	0.623
ROA_t	15,368	0.045	0.052	0.015	0.038	0.069
MB_t	15,368	3.506	2.755	1.766	2.677	4.276
$OPAQUE_t$	15,368	0.173	0.128	0.083	0.142	0.229
$BIG\ 4_t$	15,368	0.060	0.238	0.000	0.000	0.000
IO_t	15,368	0.350	0.241	0.134	0.335	0.540
ANA_t	15,368	1.837	1.416	0.693	1.792	3.045

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Panel B: Correlation

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	$NCSKEW_{t+1}$	1														
2	$DUVOL_{t+1}$	0.876*	1													
3	LLP_t	-0.065*	-0.054*	1												
4	$NCSKEW_t$	0.058*	0.045*	-0.084*	1											
5	$DTURN_t$	-0.003	-0.006	-0.084*	-0.006	1										
6	$SIGMA_t$	0.099*	0.088*	-0.228*	-0.120*	0.310*	1									
7	RET_t	-0.083*	-0.074*	0.204*	0.146*	-0.295*	-0.976*	1								
8	$SIZE_t$	-0.028*	-0.029*	0.097*	-0.029*	-0.023*	-0.242*	0.213*	1							
9	LEV_t	-0.001	0.003	-0.106*	-0.009	0.020*	0.059*	-0.060*	0.438*	1						
10	ROA_t	0.072*	0.058*	-0.037*	0.046*	-0.011	-0.014	0.018*	0.024*	-0.359*	1					
11	MB_t	0.132*	0.127*	-0.071*	0.008	-0.022*	0.395*	-0.387*	-0.353*	0.027*	0.196*	1				
12	$OPAQUE_t$	0.029*	0.027*	-0.071*	0.025*	-0.001	0.133*	-0.123*	0.009	0.204*	0.024*	0.163*	1			
13	$BIG\ 4_t$	-0.022*	-0.020*	-0.052*	-0.019*	-0.001	-0.091*	0.074*	0.374*	0.080*	0.048*	-0.107*	-0.056*	1		
14	IO_t	0.046*	0.054*	0.162*	0.035*	-0.214*	-0.171*	0.165*	0.398*	0.115*	0.198*	0.033*	0.007	0.176*	1	
15	ANA_t	0.062*	0.043*	0.073*	0.084*	-0.052*	-0.152*	0.158*	0.431*	-0.091*	0.450*	-0.011	-0.067*	0.188*	0.411*	1

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Table 3 Audit Firms' Organizational Form and Clients' Crash Risk

This table reports the result of the effect of audit firms' organizational transformation on client firms' future crash risk. The sample covers firm-year observations with non-missing values for all variables from 2007 to 2015. The t-statistics reported in parentheses are based on White standard errors corrected for firm clustering. Audit firm, year and industry fixed-effects are included. All variables are defined in Appendix A. *RET* is multiplied by 100 to get more readable coefficients. *, **, and *** indicate statistical significance in two-tailed tests at the 10 percent, 5 percent, and 1 percent levels, respectively.

	(1) $NCSKEW_{t+1}$	(2) $DUVOL_{t+1}$	(3) $NCSKEW_{t+1}$	(4) $DUVOL_{t+1}$
LLP_t	**-0.082***	**-0.053***		
	(-3.743)	**(-3.587)**		
Year −1			**-0.025**	**-0.010**
			(-1.004)	**(-0.556)**
Year 0			**-0.102***	**-0.060***
			(-3.588)	**(-3.023)**
Year 1			**-0.118***	**-0.073***
			(-3.481)	**(-3.055)**
Year 2+			**-0.123***	**-0.074***
			(-3.102)	**(-2.671)**
$NCSKEW_t$	0.054***	0.030***	0.053***	0.030***
	(6.144)	(5.031)	(6.124)	(5.014)
$DTURN_t$	-0.052***	-0.029**	-0.052***	-0.029**
	(-2.866)	(-2.337)	(-2.909)	(-2.360)
$SIGMA_t$	10.707***	7.759***	10.688***	7.750***
	(6.310)	(6.630)	(6.303)	(6.623)
RET_t	1.445***	1.103***	1.442***	1.101***
	(4.989)	(5.462)	(4.984)	(5.457)
$SIZE_t$	-0.005	-0.008	-0.005	-0.007
	(-0.644)	(-1.326)	(-0.612)	(-1.297)
LEV_t	-0.012	0.009	-0.014	0.008
	(-0.307)	(0.320)	(-0.348)	(0.288)
ROA_t	0.164	0.046	0.157	0.043
	(1.229)	(0.477)	(1.177)	(0.442)
MB_t	0.010***	0.006***	0.010***	0.006***
	(3.782)	(3.132)	(3.793)	(3.139)
$OPAQUE_t$	0.041	0.025	0.039	0.024
	(0.858)	(0.746)	(0.826)	(0.725)
$BIG\ 4_t$	0.044	0.058	0.042	0.057
	(0.807)	(1.555)	(0.781)	(1.528)
IO_t	0.134***	0.129***	0.134***	0.129***
	(4.774)	(6.633)	(4.757)	(6.618)
ANA_t	0.035***	0.017***	0.035***	0.017***
	(6.422)	(4.519)	(6.423)	(4.519)
Constant	-0.488**	-0.269*	-0.473**	-0.263*
	(-2.237)	(-1.777)	(-2.163)	(-1.736)
Industry, year, and audit firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R^2	0.064	0.059	0.064	0.059
N	15,368	15,368	15,368	15,368

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Table 4 Robustness Tests

This table presents the estimation results of the robustness tests. Panel A provides the estimation results using alternative measures of crash risk. Panel B provides the estimation results after controlling for firm fixed effect. Panel C provides the estimation results after controlling for additional auditors' and clients' characteristics. Panel D provides the estimation results after deleting the sample with auditor switches. Panel E provides the estimation results using subsample for the period 2010-2012. To economize on space, all the control variables (see Table 3) are suppressed. The t-statistics and z-statistics reported in parentheses are based on White standard errors corrected for firm clustering. All variables are defined in Appendix A. $CRASH\_FRE$ and $CRASH\_FRE\_IND$ are multiplied by 100 to get more readable coefficients. *, **, and *** indicate statistical significance in two-tailed tests at the 10 percent, 5 percent, and 1 percent levels, respectively.

Panel A: Alternative Measure of Crash Risk

	(1) $CRASH_{t+1}$	(2) $CRASH\ FRE_{t+1}$	(3) $NCSKEW\ IND_{t+1}$	(4) $DUVOL\ IND_{t+1}$	(5) $CRASH\ IND_{t+1}$	(6) $CRASH\ FRE\ IND_{t+1}$
LLP_t	-0.386***	-0.065***	-0.081***	-0.064***	-0.354***	-0.058***
	(-3.385)	(-3.388)	(-3.740)	(-4.444)	(-3.073)	(-3.173)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry, year, and audit firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2/Pseudo R^2	0.031	0.008	0.062	0.057	0.029	0.009
N	15,368	15,368	15,368	15,368	15,368	15,368

Panel B: Firm Fixed Effect

	(1) $NCSKEW_{t+1}$	(2) $DUVOL_{t+1}$	(3) $CRASH_{t+1}$	(4) $CRASH\ FRE_{t+1}$
LLP_t	-0.089***	-0.060***	-0.403***	-0.069***
	(-3.817)	(-3.840)	(-3.323)	(-3.480)
Controls	Yes	Yes	Yes	Yes
Firm, year, and audit firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R^2/Pseudo R^2	0.072	0.067	0.074	0.016
N	15,368	15,368	15,368	15,368

Panel C: Controlling for Additional Auditor and Client Characteristics

	(1) NCSKEW$_{t+1}$	(2) DUVOL$_{t+1}$	(3) CRASH$_{t+1}$	(4) CRASH_FRE$_{t+1}$
LLP$_t$	**-0.080*****	**-0.054*****	**-0.352*****	**-0.059*****
	(-3.485)	**(-3.496)**	**(-2.947)**	**(-2.934)**
FOREIGN$_t$	-0.086***	-0.038**	0.010	0.004
	(-3.192)	(-2.119)	(0.061)	(0.172)
SOE$_t$	0.001	0.003	-0.039	-0.007
	(0.088)	(0.307)	(-0.488)	(-0.530)
OWNER$_t$	-0.129***	-0.081***	-0.246	-0.037
	(-3.117)	(-2.709)	(-1.057)	(-1.039)
BOARD$_t$	-0.032	-0.032	-0.099	-0.017
	(-0.877)	(-1.234)	(-0.468)	(-0.532)
INDEP$_t$	0.012	-0.011	-0.329	-0.031
	(0.088)	(-0.122)	(-0.494)	(-0.299)
DUAL$_t$	0.035**	0.015	0.103	0.019
	(2.190)	(1.390)	(1.173)	(1.295)
EO$_t$	-0.026	-0.033	0.086	0.008
	(-0.423)	(-0.726)	(0.263)	(0.142)
TENURE$_t$	0.001	0.002*	-0.004	-0.000
	(0.744)	(1.781)	(-0.368)	(-0.158)
SPECIALIST$_t$	-0.296**	-0.180**	-1.241	-0.189*
	(-2.250)	(-1.961)	(-1.493)	(-1.681)
Controls	Yes	Yes	Yes	Yes
Industry, year, audit firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R^2/Pseudo R^2	0.066	0.056	0.034	0.009
N	13,795	13,795	13,795	13,795

Panel D: Removing Sample with Auditor Changes

	(1) NCSKEW$_{t+1}$	(2) DUVOL$_{t+1}$	(3) CRASH$_{t+1}$	(4) CRASH_FRE$_{t+1}$
LLP$_t$	**-0.077*****	**-0.051*****	**-0.250***	**-0.045****
	(-2.945)	**(-2.931)**	**(-1.841)**	**(-1.975)**
Controls	Yes	Yes	Yes	Yes
Industry, year, audit firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R^2/Pseudo R^2	0.056	0.049	0.036	0.009
N	9,732	9,732	9,732	9,732

Panel E: Subsample for the Period 2010 - 2012

	(1) NCSKEW$_{t+1}$	(2) DUVOL$_{t+1}$	(3) CRASH$_{t+1}$	(4) CRASH_FRE$_{t+1}$
LLP$_t$	**-0.106*****	**-0.071*****	**-0.455*****	**-0.079*****
	(-3.840)	**(-3.841)**	**(-3.232)**	**(-3.113)**
Controls	Yes	Yes	Yes	Yes
Industry, year, audit firm fixed effects	Yes	Yes	Yes	Yes
Adjusted R^2/Pseudo R^2	0.075	0.060	0.024	0.016
N	5,572	5,572	5,572	5,572

Table 5 Path Analysis

This table presents the estimation results of path analysis with accounting conservatism (*CSCORE*), management forecasts pessimism (*GUIDEPES*), MD&A tone pessimism (*MD&APES*) as mediator variables. Control variables include *SIZE, LEV, OCF, ROA, LOSS, GROWTH, FOREIGN, SOE, OWNER, EO, DUAL*, and *INDEP* for the mediated path with accounting conservatism as the dependent variable. Control variables include *SIZE, ROA, GROWTH, STDROA, MB, ANA, SOE, OWNER, EO*, and *HORIZON* for the mediated path with management forecasts pessimism as the dependent variable. Control variables include *SIZE, ROA, RET, STDROA, SIGMA, MB, AGE, SOE, OWNER*, and *EO* for the mediated path with MD&A tone pessimism as the dependent variable. Control variables are the same as Table 3 when the dependent variable is the crash risk. To economize on space, we suppress all the control variables. The standardized coefficients in all panels are reported to ease interpretation across models. The t-statistics/z-statistics reported in parentheses are based on White standard errors corrected for firm clustering. Audit firm, year and industry fixed-effects are included. All variables are defined in Appendix A. *, **, and *** indicate statistical significance in two-tailed tests at the 10 percent, 5 percent, and 1 percent levels, respectively.

	(1)	(2)
$CrashRisk =$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Direct Path:		
$P_d = p(LLP_t, CrashRisk_{t+1})$	-0.056***	-0.058***
	(-3.282)	(-3.515)
Mediated Path for Clients' Accounting Conservatism:		
$P_{11} = p(LLP_t, CSCORE_t)$	0.037***	0.037***
	(5.570)	(5.570)
$P_{12} = p(CSCORE_t, CrashRisk_{t+1})$	-0.031***	-0.037***
	(-2.593)	(-3.169)
Total Mediated Path for Clients' Accounting Conservatism:		
$\boldsymbol{P_{11} \times P_{12}}$	**-0.001****	**-0.001*****
	(-2.351)	**(-2.754)**
Mediated Path for Clients' Management Forecasts Pessimism:		
$P_{21} = p(LLP_t, GUIDEPES_t)$	0.049***	0.049***
	(3.064)	(3.064)
$P_{22} = p(GUIDEPES_t, CrashRisk_{t+1})$	-0.027***	-0.028***
	(-2.923)	(-3.163)
Total Mediated Path for Clients' Management Forecasts Pessimism:		
$\boldsymbol{P_{21} \times P_{22}}$	**-0.001****	**-0.001****
	(-2.115)	**(-2.201)**
Mediated Path for Clients' MD&A Tone Pessimism:		
$P_{31} = p(LLP_t, MD\&APES_t)$	0.150***	0.150***
	(12.477)	(12.477)
$P_{32} = p(MD\&APES_t, CrashRisk_{t+1})$	-0.022**	-0.019*
	(-2.264)	(-1.926)
Total Mediated Path for Clients' MD&A Tone Pessimism:		
$\boldsymbol{P_{31} \times P_{32}}$	**-0.003****	**-0.003***
	(-2.228)	**(-1.903)**
Controls	Yes	Yes
Industry, year, and audit firm fixed effects	Yes	Yes
N	13,646	13,646

Table 6 Early and Late Organizational Form Changers

This table reports the results for firms audited by audit firms who change the organizational form from from 2010 to 2012 (early changers) and in 2013 (late changers), respectively. The sample covers firm-year observations from 2007 to 2015. We include only firms with no auditor turnover during the whole sample peiord. The t-statistics reported in parentheses are based on White standard errors corrected for firm clustering. Audit firm, year and industry fixed-effects are included. All variables are defined in Appendix A. *, **, and *** indicate statistical significance in two-tailed tests at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Early Changer				Late Changer			
Audit firm =	(1) NCSKEW_{t+1}	(2) DUVOL_{t+1}	(3) NCSKEW_{t+1}	(4) DUVOL_{t+1}	(5) NCSKEW_{t+1}	(6) DUVOL_{t+1}	(7) NCSKEW_{t+1}	(8) DUVOL_{t+1}
LLP_t	-0.027	-0.007			-0.110***	-0.091***		
	(-0.570)	(-0.213)			(-2.639)	(-3.365)		
Year−1			0.086	0.064			-0.053	-0.015
			(1.270)	(1.383)			(-1.411)	(-0.577)
Year0			0.043	0.043			-0.165***	-0.113***
			(0.530)	(0.794)			(-3.465)	(-3.522)
Year1			0.087	0.090			-0.250***	-0.199***
			(0.989)	(1.489)			(-3.742)	(-4.313)
Year 2+			0.062	0.058			-0.257***	-0.202***
			(0.655)	(0.889)			(-3.030)	(-3.427)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry, year, audit firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R²	0.051	0.041	0.051	0.042	0.057	0.053	0.058	0.054
N	3,506	3,506	3,506	3,506	6,226	6,226	6,226	6,226

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Table 7 Early and Late Organizational Form Changers: Path Analysis

This table reports the path analysis results for firms audited by audit firms who change the organizational form from 2010 to 2012 (early changers) and in 2013 (late changers), respectively. The sample covers firm-year observations from 2007 to 2015. We include only firms with no auditor turnover during the whole sample peiord. The t-statistics reported in parentheses are based on White standard errors corrected for firm clustering. Audit firm, year and industry fixed-effects are included. All variables are the same as in Table 5 and as defined in Appendix A. *, **, and *** indicate statistical significance in two-tailed tests at the 10 percent, 5 percent, and 1 percent levels, respectively.

Audit firm =	Early Changer		Late Changer	
	(1)	(2)	(3)	(4)
$CrashRisk =$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$	$NCSKEW_{t+1}$	$DUVOL_{t+1}$
Direct Path:				
$P_d = p(LLP_t, CrashRisk_{t+1})$	-0.016	-0.002	-0.080**	-0.098***
	(-0.431)	(-0.063)	(-2.441)	(-3.259)
Mediated Path for Clients' Accounting Conservatism:				
$P_{11} = p(LLP_t, CSCORE_t)$	0.037***	0.037***	0.070***	0.070***
	(3.534)	(3.534)	(7.228)	(7.228)
$P_{12} = p(CSCORE_t, CrashRisk_{t+1})$	-0.069***	-0.058**	-0.033*	-0.041**
	(-2.656)	(-2.323)	(-1.751)	(-2.242)
Total Mediated Path for Clients' Accounting Conservatism:				
$P_{11} \times P_{12}$	**-0.003****	**-0.002***	**-0.002***	**-0.003****
	(-2.123)	**(-1.941)**	**(-1.702)**	**(-2.141)**
Mediated Path for Clients' Management Forecasts Pessimism:				
$P_{21} = p(LLP_t, GUIDEPES_t)$	-0.013	-0.013	0.081***	0.081***
	(-0.345)	(-0.345)	(3.509)	(3.509)
$P_{22} = p(GUIDEPES_t, CrashRisk_{t+1})$	-0.032*	-0.023	-0.044***	-0.039***
	(-1.849)	(-1.342)	(-2.707)	(-2.634)
Total Mediated Path for Clients' Management Forecasts Pessimism:				
$P_{21} \times P_{22}$	**0.000**	**0.000**	**-0.004****	**-0.003****
	(0.339)	**(0.334)**	**(-2.144)**	**(-2.107)**
Mediated Path for Clients' MD&A Tone Pessimism:				
$P_{31} = p(LLP_t, MD\&APES_t)$	0.045	0.045	0.238***	0.238***
	(1.357)	(1.357)	(13.239)	(13.239)
$P_{32} = p(MD\&APES_t, CrashRisk_{t+1})$	-0.015	-0.012	-0.029*	-0.028*
	(-0.754)	(-0.605)	(-1.847)	(-1.743)
Total Mediated Path for Clients' MD&A Tone Pessimism:				
$P_{31} \times P_{32}$	**-0.001**	**-0.001**	**-0.007***	**-0.007***
	(-0.659)	**(-0.553)**	**(-1.829)**	**(-1.728)**
Controls	Yes	Yes	Yes	Yes
Industry, year, and audit firm fixed effects	Yes	Yes	Yes	Yes
N	3,199	3,199	5,536	5,536

Table 8 Auditors' Organizational Form, Clients' Crash Risk and Lawsuits

This table presents the estimation results from the logit regression of lawsuits on auditors' organizational form and clients' stock price crash risk. The t-statistics reported in parentheses are based on White standard errors corrected for firm clustering. Year and industry fixed-effects are included. All variables are defined in Appendix A. *, **, and *** indicate statistical significance in two-tailed tests at the 10 percent, 5 percent, and 1 percent levels, respectively.

	(1) $LAWSUIT_{t+1}$	(2) $LAWSUIT_{t+1}$
$NCSKEW_t$	**0.077****	**-0.010**
	(2.176)	**(-0.190)**
$NCSKEW_t \times LLP_t$		**0.153****
		(2.326)
LLP_t		**0.192****
		(2.005)
$SIZE_t$	0.032	0.033
	(0.849)	(0.861)
$GROWTH_t$	0.087*	0.088*
	(1.927)	(1.949)
ROA_t	-4.924***	-4.905***
	(-5.259)	(-5.243)
$ZSCORE_t$	-0.125*	-0.128*
	(-1.672)	(-1.712)
RET_t	-0.853	-0.751
	(-0.719)	(-0.630)
$SIGMA_t$	9.055	9.897
	(1.241)	(1.350)
$TURN_t$	-0.023**	-0.022**
	(-2.369)	(-2.323)
$ABACC_t$	0.429*	0.423*
	(1.800)	(1.774)
IO_t	-0.368**	-0.361**
	(-2.089)	(-2.047)
Constant	-2.170**	-2.301**
	(-2.441)	(-2.574)
Industry and year fixed effects	Yes	Yes
Pseudo R^2	0.042	0.043
N	15,368	15,368

Appendix A: Variable Definition

Variables		Definitions
Dependent Variables		
NCSKEW	=	The negative skewness of firm-specific weekly returns over the fiscal year as defined in Kim et al. 2011a,b);
DUVOL	=	The logarithm of the ratio of the standard deviations of down-week to up-week firm-specific returns as defined in Kim et al. 2011a,b);
CRASH	=	1 if within its fiscal year a firm experiences one or more firm-specific weekly returns falling 3.09 or more standard deviations below the mean firm-specific weekly return, and 0 otherwise;
CRASH_FRE	=	The frequency that within its fiscal year a firm experiences firm-specific weekly returns falling 3.09 or more standard deviations below the mean firm-specific weekly return;
NCSKEW_IND	=	The *NCSKEW* with industry factors when calculation;
DUVOL_IND	=	The *DUVOL* with industry factors when calculation;
CRASH_IND	=	The *CRASH* with industry factors when calculation;
CRASH_FRE_IND	=	The *CRASH_FRE* with industry factors when calculation;
LAWSUIT	=	1 if the company and/or its auditor is sued for accounting-related reporting issues, and 0 otherwise;
Test Variables		
LLP	=	1 if the auditor's organizational form has been transformed into Limited Liability Partnerships (LLP), and 0 otherwise;
Year -1	=	1 for the year that is the year prior to the auditor's organizational transformation, and 0 otherwise;
Year 0	=	1 for the year that is the starting year of the auditor's organizational transformation, and 0 otherwise;
Year 1	=	1 for the year that is the first year following the auditor's organizational transformation, and 0 otherwise;
Year 2+	=	1 for the years that are the second year and onwards following the auditor's organizational transformation, and 0 otherwise;
Mediator Variables		
CSCORE	=	The conservatism score (C_Score) as defined in Khan and Watts (2009);
GUIDEPES	=	The difference between actual earnings and management earnings forecast (point value for point forecast and midpoint value for range forecast) divided by the market value of equity;
MD&APES	=	The difference between the number of negative words and the number of positive words divided by the sum of the number of negative words and the number of positive words in MD&A of the firm's annual report, where the tone of words is based on Loughran and McDonald (2011);
Control variables		
DTURN	=	The detrended stock trading volume, calculated as the average monthly share turnover for the current fiscal year minus the average monthly share turnover for the previous fiscal year, where monthly share turnover is the monthly trading volume divided by the total number of floating shares on the market that month;
SIGMA	=	The standard deviation of firm-specific weekly returns over the fiscal year;
RET	=	The mean of firm-specific weekly returns over the fiscal year;
SIZE	=	The natural logarithm of total assets at the end of the fiscal year;
LEV	=	The total liabilities divided by total assets at the end of the fiscal year;
ROA	=	The net income before extraordinary items scaled by the beginning balance of total assets;

Variables		Definitions
MB	=	The market-to-book ratio of common stockholders' equity at the end of the fiscal year;
OPAQUE	=	The three-year moving sum of absolute discretionary accruals, where discretionary accruals are estimated from the modified Jones model (Dechow, Sloan, and Sweeney 1995);
BIG 4	=	1 if the company is audited by the International Big 4 CPA firm, and 0 otherwise;
IO	=	The number of shares held by institutional investor divided by the total number of shares outstanding;
ANA	=	The natural logarithm of 1 plus the number of analysts following the firm;
FOREIGN	=	1 for firms issuing H-shares or B-shares, and 0 otherwise;
SOE	=	1 if the firm's ultimate shareholder is a government entity, and 0 otherwise;
OWNER	=	The percentage of ownership held by the controlling shareholder;
BOARD	=	The natural logarithm of the number of directors on the board;
INDEP	=	The ratio of the number of independent directors over the total number of directors on the board;
DUAL	=	1 if the CEO also holds the position of the chair of the board, and 0 otherwise;
EO	=	The percentage of outstanding shares owned by a firm's top executives;
TENURE	=	The number of years that the company is audited by the same auditor after its IPO;
SPECIALIST	=	The percentage of total audit fees owned by the auditor in the firms' industry;
OCF	=	The operating cash flow divided by total assets at the end of the fiscal year;
LOSS	=	1 for firms reporting losses in the annual report, and 0 otherwise;
GROWTH	=	The difference between current year sales and prior year sales divided by prior year sales;
STDROA	=	The historical standard deviation of ROA computed over the preceding 3 years;
HORIZON	=	The natural logarithm of the day gap between management earnings forecast date and the firm's fiscal year-end date;
AGE	=	The natural logarithm of one plus the number of years since the firm goes public;
ZSCORE	=	Bankruptcy score as defined in Altman (1968);
TURN	=	The total number of shares traded in a year divided by the total number of shares outstanding at the end of the fiscal year;
ABACC	=	The absolute discretionary accruals, where discretionary accruals are estimated from the modified Jones model (Dechow, Sloan, and Sweeney 1995);

Appendix B: Measurement of Accounting Conservatism

We employ the conditional conservatism score (*CSCORE*) in Khan and Watts (2009). First, they specify the timeliness of recognition of good news (*GSCORE*) and bad news (*CSCORE*) as follows:

$$X_t = \beta_1 + \beta_2 D_t + \beta_3 RET_t + \beta_4 D * RET_t + \varepsilon, \tag{6}$$

$$GSCORE_t = \beta_3 = \mu_1 + \mu_2 MV_t + \mu_3 MTB_t + \mu_4 LEV_t + \varepsilon, \tag{7}$$

$$CSCORE_t = \beta_4 = \lambda_1 + \lambda_2 MV_t + \lambda_3 MTB_t + \lambda_4 LEV_t + \varepsilon, \tag{8}$$

where *X* is net income before extraordinary items scaled by lagged total equity; *D* is a dummy variable equal to one if *RET* is negative, and zero otherwise; *RET* is annual buy-and-hold return beginning four months after the prior fiscal year-end; *MV* is the logarithm of the market value of equity; *MB* is market-to-book ratio; *LEV* is total debt divided by total assets.

β_3 and β_4 in Equation (6) indicate the timeliness of good news and bad news and are substituted with Equations (7) and (8), respectively. We then estimate the substituted Equation (6) annually to obtain estimates of the parameters. Finally, firm-specific *CSCORE* is computed using the parameter estimates, $\hat{\lambda}_1$ to $\hat{\lambda}_4$.