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Market for corporate control and demand for auditing: evidence from international M&A laws

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Abstract
We investigate whether and how the market for corporate control affects the demand for audit service in a cross-country setting. In so doing, we exploit the staggered enactments of merger and acquisition (M&A) laws as an exogenous shock that substantially increases takeover pressure. We find that firms are more likely to choose Big 4 auditors in the period after the enactment of M&A laws, suggesting that the takeover pressure heightened by the passage of M&A laws increases the demand for audit verification and assurance by high-quality auditors. We also find that the enactment of M&A laws leads to greater demand for Big 4 auditors through two channels: managerial commitment to curtailing agency problems and the enhancement of board monitoring. We further show that improved auditor quality facilitates creditors' and investors' reliance on accounting information, as reflected in greater use of accounting-based debt covenants and enhanced earnings informativeness, respectively, in the post-enactment period. Overall our results suggest that auditors play a key role in strengthening corporate governance after the enactment of M&A laws.

Keywords Auditor selection · International merger and acquisition (M&A) laws · Managerial commitment · Board monitoring · Debt covenants · Earnings informativeness

JEL Classification G34 · G38 · M41 · M42

1 Introduction

The market for corporate control disciplines entrenched managers and limits agency problems by increasing the likelihood of their forced turnovers when they do not serve the interests of shareholders (Manne 1965; Fama and Jensen 1983; Jensen and

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Ruback 1983). An integral part of this governance mechanism is the performance evaluation by shareholders and directors, which relies largely on audited financial statements (DeAngelo 1988). In addition, potential acquirers use financial statements as a key source of information to identify underperforming targets and make takeover bids (Raman et al. 2013). Despite the importance of financial reporting and auditing in the corporate control mechanism, researchers have a limited understanding of the relation between the corporate control market and external auditing. To fill this void in the literature, we investigate whether and, if so, how the market for corporate control affects the demand for audit verification and assurance services.

We argue that external takeover pressure increases the demand for high-quality auditors for two distinct but interrelated reasons. First, an active takeover market enhances managerial discipline and prompts managers to serve the interests of shareholders to mitigate the threats of losing their jobs and reputational capital. Managers facing takeover threats feel great pressure to better use corporate resources and pursue value-adding investments to fend off takeover attempts. In this circumstance, managers often increase financial leverage to constrain themselves from diverting free cash flows to inefficient capital investments for personal gain (Jensen 1988; Berger et al. 1997; Servaes and Tamayo 2014; Khurana and Wang 2019). Likewise, managers can use the appointment of high-quality auditors to commit themselves to curtailing agency problems by enhancing financial reporting quality and facilitating shareholders' evaluation of managerial performance (*managerial commitment channel*). Because this commitment is costly, it can serve as a credible signal that managers voluntarily constrain managerial opportunism in financial reporting (Jensen and Meckling 1976; Datar et al. 1991; Hirshleifer and Thakor 1998). This would, in turn, increase firm value and hence decrease the likelihood of being targeted by unwanted takeover attempts (Khurana and Wang 2019; Balachandran et al. 2020).

Second, takeover threats incentivize board members to appoint high-quality auditors to better monitor incumbent managers (*board monitoring channel*). In the presence of takeover threats, the board and its audit committee are expected to more closely scrutinize managerial reporting opportunism to protect their positions (Mikkelson and Partch 1997; Coles and Hoi 2003; Lel and Miller 2015), maintain their reputational capital in the labor market for corporate directors (Fama and Jensen 1983; Gilson 1990), and avoid potential legal liability (Lennox and Pittman 2010). Accordingly, the board is likely to demand higher-quality auditors for effective monitoring when faced with takeover pressure (Beasley and Petroni 2001; Carcello et al. 2002; Lee et al. 2004; Chen and Zhou 2007).

To test the impact of takeover pressure on auditor choice, we exploit the staggered adoption of merger and acquisition (M&A) laws that have been enacted across countries around the world. During the period from 1991 to 2004, many countries passed M&A laws in a staggered manner to strengthen their markets for corporate control by simplifying the legislation governing M&A transactions and removing unnecessary and time-consuming approval procedures, thus enhancing the efficacy

of the corporate control market (Lel and Miller 2015).[1] These M&A laws were generally intended to reduce barriers to transactions, encourage information dissemination, and increase minority investor protection (Nenova 2006; Lel and Miller 2015; Glendening et al. 2016). Exploiting country-level regulatory shocks is appealing from an empirical test standpoint because it alleviates concerns about potential endogeneity. Specifically, the staggered enactments of M&A laws across countries allow us to conduct a quasi-natural experiment in which we apply a difference-in-differences (DiD) analysis to examine the causal effect of the market for corporate control on the demand for high-quality audits.

Using a sample of firms from 32 countries for the period 1986–2009, we find that firms in treatment countries with M&A law enactments are more likely to appoint Big 4 auditors in the post-law period than in the pre-law period, compared to those in control countries with no enactment.[2] The probability of appointing Big 4 auditors is 5.6 percentage points higher in the post-law period than in the pre-law period, suggesting that the enactment of M&A laws leads to a significant increase in the demand for high-quality audits.[3] To ensure the validity of our analysis, we check whether our results are driven by the violation of the parallel trends assumption in the pre-law period and the treatment effect heterogeneity. We find that the effect of the M&A law enactment on auditor choice is insignificant in the pre-law period (consistent with the parallel trends assumption) and becomes significant in the year of the law's passage and thereafter. We further find that our baseline results remain robust when we apply event-study DiD estimations that control for potential biases associated with the treatment effect heterogeneity in staggered DiD estimations (Baker et al. 2022). Overall our results provide strong and reliable evidence in support of the causal effect of M&A law passage on the demand for Big 4 auditors.

Next our cross-sectional analyses reveal that firms are more likely to appoint Big 4 auditors in countries that experience more intense takeover activity. This suggests that takeover threats play a greater disciplinary role in increasing the demand for Big 4 auditors when the passage of M&A laws fosters takeovers. We also perform channel analyses to see whether the impact of M&A laws on auditor selection runs

[1] For example, India eliminated several takeover defenses and unequal treatment of target shareholders regarding offer prices, and New Zealand allowed acquirers to squeeze out minority shareholders to promote M&A transactions.

[2] Out of 32 countries, 16 treatment countries passed M&A laws during the sample period, and 16 control countries had never passed M&A laws before or during the sample period. Throughout the paper, we use the term "Big 4 auditors" to denote both current Big 4 auditors and former Big 5, 6, or 8 auditors.

[3] Cross-country studies show that Big 4 auditors provide higher-quality audit services than non-Big 4 auditors because Big 4 auditors have international reputations and bear higher legal liability costs (e.g., Fan and Wong 2005; Choi et al. 2008). Moreover, the size difference between Big 4 and non-Big 4 firms is more substantial outside the United States, which prevents non-Big 4 firms from achieving the economy of scale in terms of the investment in audit quality (Choi et al. 2008). In contrast, studies on the US audit market provide mixed evidence on the difference in audit quality between Big 4 and non-Big 4 firms. Chaney et al. (2004) and Lawrence et al. (2011) find no significant difference between Big 4 and non-Big 4 firms in terms of audit fee premiums and audit quality, respectively, when they control for the endogeneity of auditor selection. On the other hand, Jiang et al. (2019) find that audit quality improves when clients change their auditors from non-Big 4 to Big 4 firms, due to M&A of audit firms, consistent with higher audit quality for Big 4 firms.

through our two predicted channels. First, we find that the enactment of M&A laws leads to a greater increase in the appointment of Big 4 auditors for firms with higher agency costs, proxied by those with multiple segments and those experiencing a larger increase in leverage ratio or a greater decline in capital investment in response to takeover threats.[4] The finding supports the existence of a managerial commitment channel in which managers facing greater agency problems are more likely to voluntarily commit to enhancing financial reporting quality via the appointment of Big 4 auditors. Second, we find that the increased demand for Big 4 auditors is primarily driven by firms in countries with higher values on the anti-director index and the anti-self-dealing index, where board members are exposed to higher legal liabilities and thus have stronger incentives to increase their oversight (Lennox and Pittman 2010). Our results are also concentrated among firms in countries with higher auditor legal liability, where Big 4 auditors appointed by the boards are motivated to produce higher-quality audits to protect their reputational capital and mitigate litigation risk than are non-Big 4 auditors (Khurana and Raman 2004; Choi et al. 2008). Both findings are consistent with the existence of a board monitoring channel.

We further investigate how takeover pressure influences creditors' and investors' demands for audit verification and assurance in the context of debt contracting and equity valuation, respectively. When firms seek to borrow, lenders demand audit assurance for covenant compliance in debt contracting (Ball and Shivakumar 2008; Baylis et al. 2017). Lenders are likely to rely more on accounting-based covenants in debt contracting if borrowers appoint higher-quality auditors in response to takeover threats. Consistent with this expectation, we find that the usage of accounting-based covenants, relative to non-accounting-based covenants, increases significantly following the passage of M&A laws. We also find that the price informativeness of accounting earnings increases significantly from the pre- to post-law period, consistent with investors relying more on accounting information in their performance evaluation in the post-law period. This evidence suggests that the demand from both credit and equity investors for high-quality audits increases in the presence of heightened takeover pressure.

Finally, we explore additional consequences of takeover pressure on audit quality and audit fees. We find that the enactment of M&A laws increases audit quality in that the likelihood of erroneously issuing clean opinions decreases significantly in the post-law period. This finding suggests that takeover market governance improves auditor governance of clients' financial reporting. Moreover, we find that audit fees in treatment countries increase less than those in control countries during our sample period surrounding the passage of M&A laws. This finding is consistent with the view that the fee-decreasing effect of improvements in the quality of (pre-audited)

[4] We regard firms with more business segments as having greater agency conflicts because corporate outsiders face greater difficulty in monitoring such firms' managerial activities and evaluating their performance (Berger and Hann 2003). In addition, we regard the increase (decrease) in leverage (investment) as an indication of managerial efforts to address severe agency problems (Khurana and Wang 2019) because managers under takeover pressure can increase financial leverage and reduce investment to credibly constrain their ability to divert corporate resources for private gains (Jensen 1988; Berger et al. 1997; Safieddine and Titman 1999; Servaes and Tamayo 2014). See Section 5.2 for more details.

financial statements (supply-side effect) dominates the fee-increasing effect arising from the increased demand for audit verifications (demand-side effect). Overall our results suggest that the well-functioning corporate control market facilitates auditor governance and thus improves audit quality without substantial increases in audit fees.

This study contributes to the literature in several ways. First, it presents an important link between the market for corporate control and external auditing in the context of corporate governance mechanisms. The role of takeover pressure as a primary mechanism of external governance is well studied in the finance literature. Surprisingly, however, this literature has paid little attention to the effects of the corporate control market on the demand for and provision of audit services, even though performance evaluation based on audited financial reports is a critical part of this external governance mechanism. This study advances understanding of the relation between the market for corporate control and auditor choice by showing that the two governance mechanisms are complementary. Our results provide new insights into the interplay between these two distinct but interrelated governance mechanisms.

Second, as noted by Carcello et al. (2011), studies on the association between external governance and auditing have largely ignored the endogenous nature of governance characteristics and provided, at best, mixed results.[5] Specifically, the association between the two is often subject to potential endogeneity, in particular, because governance characteristics and audit variables are jointly influenced by common firm-specific factors, such as firm size and operating performance (Chaney et al. 2004; Carcello et al. 2011; DeFond and Zhang 2014). To the best of our knowledge, this study is among the few, if not the first, to provide large-sample, systematic evidence that the efficacy of the corporate control market has a significant impact on auditor choice, with potential endogeneity being accounted for.

Third, our study contributes to the international accounting and auditing literature, especially the literature on the consequences of M&A laws. We show that heightened takeover pressure under the M&A laws incentivizes the management and the board to increase the demand for both high-quality assurance services and credible financial reporting. We also find that the improved reporting quality in the post-law period enables credit and equity investors to rely more on financial statement information in debt contracting and equity valuation, respectively. The above findings support the view that the passage of M&A laws boosts the demand for external audit verification and assurance. Our cross-country evidence also provides valuable insights into whether and how high-quality auditing could be achieved globally by establishing the well-functioning market for corporate control (DeFond and Francis 2005).

[5] Several studies examine the relationship between external governance mechanisms and the provision of audit services but provide mixed evidence. For example, Kim et al. (2019b) show that foreign institutional ownership relates positively to the probability of appointing a Big 4 auditor. Hope et al. (2017) and Wang and Chui (2015) find that short-seller monitoring and product market competition are positively associated with audit fees, whereas Gotti et al. (2012) conclude that analyst-following is negatively associated with audit fees.

This paper proceeds as follows. Section 2 presents the literature review and develops the hypothesis. Section 3 describes the research design and the data used. Section 4 reports the primary results. Section 5 presents cross-sectional tests and channel analyses. Section 6 reports the results for the external demand for audit services. Section 7 details further analyses of audit quality and audit fees. The final section concludes.

2 Literature review and hypothesis development

2.1 The market for corporate control as an external governance mechanism

The market for corporate control involves transactions for shareholder control over a company and includes all mergers, acquisitions, and reorganizations (Bittlingmayer 1998). In a perfect world, corporate assets could be channeled toward their best possible use. M&A, as an external governance mechanism, facilitate this process by reallocating control over companies, mitigating agency risks, and disciplining or replacing inefficient management (Manne 1965; Jensen 1988; Scharfstein 1988).[6] Consistent with this view, studies show that management turnover increases following completed takeover transactions, and occurs more often following acquisitions of firms that previously underperformed, relative to their industry benchmark (e.g., Grossman and Hart 1980; Scharfstein 1988; Martin and McConnell 1991; Mikkelson and Partch 1997; Kini et al. 2004). More recently, Lel and Miller (2015) show that, after the passage of M&A laws, underperforming firms are more likely to replace their managers and improve performance to avoid being takeover targets, and consequently management turnover becomes more sensitive to operating performance. They show that management turnover is more prevalent among poorly performing firms, especially in the presence of active corporate control markets.[7]

Although audited financial reports are a primary source of information for performance evaluation, the literature on the corporate control market has paid little attention to the role of financial reporting and auditing in this external governance mechanism. Some recent accounting studies show that a target's accounting quality affects the acquirer's takeover decisions (Raman et al. 2013), deal structure and completion (Marquardt and Zur 2015), and announcement returns (McNichols and

[6] Manne (1965, p. 113) describes the possible governance function of the takeover market as follows: "The lower the stock price, relative to what it could be with more efficient management, the more attractive the takeover becomes to those who believe that they can manage the company more efficiently." Similarly, Brealey and Myers (2000, p. 945) contend: "There are always firms with unexploited opportunities to cut costs and increase sales and earnings. Such firms are natural candidates for acquisition by other firms with better management.".

[7] Studies examining the effects of anti-takeover provisions also provide evidence consistent with the disciplinary effect of takeovers by showing that takeover defenses make management more entrenched and impair firm performance (e.g., Gompers et al. 2003). This evidence is consistent with shareholder activists' calls for reducing takeover protection (McGurn 2002).

Stubben 2015). Yet none of these studies examines the relationship between the market for corporate control and external auditing.

External auditors play a governance role by ameliorating managerial agency problems that are often unchallenged internally by the board or individual directors and externally by corporate control markets (Fan and Wong 2005; Choi and Wong 2007).[8] As reputable information intermediaries, external auditors verify reported accounting numbers and assure the credibility of financial statements. The audit verification and assurance not only enhance the informativeness and credibility of financial reports but also foster monitoring effectiveness and contracting efficiency. Our study examines whether and, if so, how the market for corporate control, as an external disciplinary force, affects the role of auditor governance.

2.2 The effect of the market for corporate control on auditor choice

To investigate how the market for corporate control impacts the demand for high-quality auditors, we consider two plausible channels through which the passage of M&A laws affects auditor choice.

2.2.1 Managerial commitment channel

Takeover pressure disciplines incumbent managers by prompting them to act in the interest of shareholders (Manne 1965; Fama and Jensen 1983; Safieddine and Titman 1999). As takeover threats damp managerial agency problems, entrenched managers under takeover pressure have less incentive to obfuscate financial accounting information. Consistent with this view, Healy and Palepu (2001) find that managers who face the risk of job loss due to poor performance in a takeover market tend to improve reporting quality to reduce the likelihood of undervaluation of the firm and explain away poor earnings performance. Baber et al. (2015) further show that firms with stronger takeover defenses (i.e., weaker takeover pressure) are associated with higher incidences of restatements, suggesting the positive effect of takeover threats on external reporting quality.

Studies find that an active takeover market induces managers to commit to mitigating agency conflicts by increasing leverage and curtailing nonvalue-adding capital expenditures (Denis and Denis 1993; Berger et al. 1997; Safieddine and Titman 1999; Servaes and Tamayo 2014). Likewise, the appointment of high-quality auditors serves as a commitment mechanism to mitigate agency problems (Jensen and Meckling 1976). Specifically, managers have incentives to appoint high-quality auditors to convey a costly signal that they will voluntarily constrain managerial opportunism in financial reporting. Viewed in this manner, the passage of the M&A laws is likely to increase managers' demand for high-quality auditors to credibly

[8] Other internal governance mechanisms include managerial incentive plans and the internal labor market; other external governance mechanisms include outside shareholder or debtholder monitoring, product market competition, the external managerial labor market, and securities laws (Bushman and Smith 2001).

commit that they will refrain from opportunistically managing reported earnings and will provide timely, relevant, and reliable information to investors and other stakeholders.

Takeover pressure can further increase a manager's demand for a high-quality auditor through its impact on board oversight. In their analytical model, Hirshleifer and Thakor (1998) show that it is in the management's best interest to provide the board with more accurate information because the board would dismiss the manager more aggressively when performance measures are noisy. Consistent with this prediction, Khurana and Wang (2019) and Balachandran et al. (2020) find that the enactment of M&A laws, which strengthen board oversight on managerial performance, leads to a significant increase in accounting conservatism and earnings quality.[9] Therefore we expect that, to mitigate the likelihood of their firms being takeover targets, managers under takeover pressure are more likely to appoint high-quality auditors.

2.2.2 Board monitoring channel

The external labor market for board members values their ability to monitor managers in an environment of high takeover threats (Coles and Hoi 2003). Specifically, board members whose firms are targeted in M&A often lose not only their seats in the targeted firms but also their seats in other firms (Lel and Miller 2015). Accordingly, corporate boards are more likely to replace poorly performing managers when takeover markets are more active (Hadlock and Lumer 1997; Mikkelson and Partch 1997; Lel and Miller 2015).

Financial reporting quality plays a crucial role in the monitoring process because the boards evaluate managerial performance by referencing audited financial statements.[10] When faced with takeover threats, the boards and audit committees are more likely to appoint high-quality auditors to improve financial reporting quality. Stated differently, the demand for independent audit verification and assurance increases when the corporate control market is active; more effective audit verification allows vigilant boards to acquire credible information from managers in a timelier manner. Consistent with this perspective, studies show that stronger board oversight is associated with lower levels of opportunistic earnings management and accounting irregularities (Bedard and Johnstone 2004; Carcello et al. 2006), a higher likelihood of appointing industry specialist auditors (Beasley and Petroni 2001), and higher-quality successor auditors after auditor resignations (Lee et al. 2004).

[9] Khurana and Wang (2019) find that the increase in accounting conservatism after the enactment of M&A laws is driven by intensified board monitoring in the international setting, consistent with the complementary relation between external governance and accounting conservatism. In contrast, Jayaraman and Shivakumar (2013) and Callen et al. (2014) find that accounting conservatism increases after the passage of antitakeover laws in the United States that reduced takeover pressure, suggesting increased demand for accounting conservatism as a substitute for the weakened governance from the corporate control market.

[10] Khurana and Wang (2019) show that board monitoring has contributed to increasing accounting conservatism, an attribute of reporting quality, after the enactment of M&A laws.

Therefore we expect that the external takeover threat encourages corporate boards and audit committees to appoint high-quality auditors to effectively monitor and discipline managers' financial reporting.

2.2.3 Hypothesis

A large body of research shows that Big 4 auditors have large financial and reputational capital at stake in the event of audit failure; therefore they are likely to provide higher-quality audits than non-Big 4 auditors (DeAngelo 1981; Francis and Wilson 1988; DeFond and Zhang 2014; Jiang et al. 2019). Big 4 auditors are also perceived to have international reputations and to be more independent in response to heightened takeover threats (Khurana and Raman 2004). Our channels discussed in the preceding subsections suggest that, in the presence of external takeover threats, the demand for high-quality audits increases, inducing managers and boards to appoint high-quality auditors. We thus predict that firms are more likely to appoint Big 4 auditors following the passage of M&A laws. To provide systematic evidence on this under-researched issue, we propose and test the hypothesis below, stated in alternative form.

Hypothesis: All else equal, the passage of M&A laws increases the likelihood of appointing a Big 4 auditor.

3 Research design

3.1 Empirical model

To examine the effect of the market for corporate control on auditor selection, we conduct a quasi-natural experiment by exploiting the staggered enactments of M&A laws around the world. Following Lel and Miller (2015), we view the passage of M&A laws as an exogenous shock that increases external takeover pressure. Specifically, we perform a set of DiD regressions using a sample of firms from countries that passed M&A laws during our sample period (treatment sample) and from countries that never passed M&A laws before or during the same period (control sample).

To test the impact of the enactment of M&A laws on auditor selection, we estimate a logistic regression for auditor choice (Fan and Wong 2005; Choi and Wong 2007; Guedhami et al. 2014).

$$\begin{aligned} BIG4_{ijt} = {} & \beta_0 + \beta_1 POST_{jt} \times TREAT_j + \beta_2 TREAT_j + \beta_3 SIZE_{ijt} + \beta_4 LEV_{ijt} + \beta_5 ROA_{ijt} + \beta_6 MB_{ijt} \\ & + \beta_7 NGS_{ijt} + \beta_8 NBS_{ijt} + \beta_9 INVREC_{ijt} + \beta_{10} ISSUE_{ijt} + \beta_{11} LOSS_{ijt} + \beta_{12} CURR_{ijt} \\ & + \beta_{13} ATURN_{ijt} + \beta_{14} CRLST_{ijt} + \beta_{15} GDP_{jt} + \beta_{16} REGQUAL_{jt} + \beta_{17} CH\_FR_{jt} + \beta_{18} CGRI_{jt} \\ & + \beta_{19} ASD_j + \beta_{20} ACCENF_{jt} + \beta_{21} INF_{jt} + Legal\ \&\ Year\ \&\ Industry\ Fixed\ Effects + \varepsilon_{ijt}, \end{aligned} \tag{1}$$

where, for firm i in country j in year t, the dependent variable *BIG4* is an indicator variable that equals 1 if the firm is audited by one of the Big 4 auditors (or one of the former Big 5, 6, or 8 auditors, in earlier years) and 0 otherwise. *TREAT* is an

indicator variable that equals 1 for firms in the treatment sample and 0 for firms in the control sample. *POST* is an indicator variable that equals 1 for observations in the post-law period and 0 otherwise (i.e., for observations from the treatment sample in the pre-law period and for all observations from the control sample).[11] The key variable of interest *POST*×*TREAT* is an indicator variable that is coded 1 for firm-year observations in the post-law period (*POST* = 1) from countries that have enacted M&A laws (*TREAT* = 1) and 0 otherwise. Equation (1) does not include the standalone variable *POST* because it is redundant, due to the inclusion of *POST*×*TREAT*. (See Lel and Miller 2015, p. 1598.) We expect the coefficient on our DiD estimator *POST*×*TREAT* (i.e., β_1 in Eq. (1)) to be positive if the heightened takeover pressure, due to the enactment of M&A laws, induces greater demand for high-quality audit verification proxied by the use of a Big 4 auditor. Note that the coefficient on *TREAT* (i.e., β_2 in Eq. (1)) captures the difference in the demand for Big 4 auditors between the treatment and control samples in the pre-law period (*POST* = 0).

We include a series of client characteristics as control variables in Eq. (1). We control for client size (*SIZE*), financial leverage (*LEV*), profitability (*ROA*), and market-to-book ratio (*MB*). We also control for operating complexity, using the client firm's number of geographic segments (*NGS*), number of business segments (*NBS*), and the sum of inventories and receivables divided by total assets (*INVREC*). Moreover, we add a long-term debt or equity issue indicator (*ISSUE*), a loss indicator (*LOSS*), current ratio (*CURR*), asset turnover ratio (*ATURN*), and a cross-listing indicator (*CRLST*) to the equation. Our regression model also includes country-level economic and institutional variables that may cause cross-country variations in the demand for and the provision of audit services. Specifically, we control for gross domestic product per capita (*GDP*), regulatory quality (*REGQUAL*), the change in financial reform index (*CH_FR*), corporate governance reforms (*CGRI*), the anti-self-dealing index (*ASD*), the strength of enforcement actions related to financial statement reporting (*ACCENF*), and the inflation rate of each country-year (*INF*).[12] Detailed variable definitions are provided in the Appendix Table 11.

We further add legal system fixed effects in Eq. (1) because legal origin may influence the demand for and the provision of audit services through its impact on investor protection, legal enforcement, and corporate governance (La Porta et al. 1997).[13] We also include year fixed effects to capture the effect of staggered

[11] We include the enactment year of M&A laws in the post-law period (*POST* = 1). Untabulated analyses yield virtually identical results when we classify the enactment year in the pre-law period (*POST* = 0) or when we exclude observations for the enactment year.

[12] Six out of seven country-level variables in Eq. (1) represent time-varying country characteristics that might influence the temporal change in auditor selection. We control for the time-varying country factors rather than country fixed effects because the latter only control for time-invariant country characteristics, whereas we test for the temporal change in the demand for Big 4 auditors following the enactment of M&A laws. When we alternatively include country fixed effects, our results are qualitatively unchanged.

[13] Following La Porta et al. (1997), we classify sample countries into five legal-origin groups: English, French, Scandinavian, German, and others, including China and Poland.

regulations other than enactments of M&A laws that were implemented in different years. We include industry fixed effects to control for potential variations in auditor selection across industries.[14] To mitigate the effect of extreme values, we winsorize observations at the top and bottom 1 percent of the distribution for each continuous variable. We report z-statistics (or t-statistics) using robust standard errors corrected for heteroscedasticity and firm-level clustering throughout the paper.

3.2 Sample and data

Table 1 presents the selection and distribution of the sample used in our main analysis. Panel A of Table 1 describes the sample screening procedures. To construct the dataset, we first obtain financial data from Worldscope for firms in countries that passed takeover laws during the period from 1986 to 2009 and from those that had never passed takeover laws before or during this period.[15] The sample period starts in 1986, which is five years before the earliest M&A law enactment in our sample. (South Africa, Spain, and Sweden enacted M&A laws in 1991.) It ends in 2009, which is five years after the last M&A law enactment in our sample. (Switzerland enacted M&A laws in 2004.) We do not include countries that passed M&A laws before 1991 because, for these countries, there are insufficient data available for the pre-law period, and they are thus not appropriate for the DiD analysis. The initial sample consists of 202,761 firm-year observations. We exclude 31,054 observations for firms from financial industries, leaving 171,707 firm-year observations. We also exclude observations with missing data for auditor identity and other variables required in Eq. (1). This screening process provides our main sample of 117,369 firm-year observations from 32 countries.[16]

Panel B of Table 1 reports the number of observations, the M&A-law status including enactment year, and the name of the M&A law for each of our sample

[14] Logistic regressions with fixed effects may suffer from incidental parameters problems (Greene 2012, Chapter 17). To check the sensitivity of our results, we apply the ordinary least squares (OLS) estimation to regressions with binary dependent variables. The results are consistent with those reported in this manuscript and available in the online appendix.

[15] Worldscope provides auditor identification for each client firm only for the most recent year. Thus we use data from Capital IQ for auditor identification. If auditor details are missing from Capital IQ, they are supplemented by details from Compustat Global for observations before 2004 and Worldscope otherwise. We use Compustat Global for years before 2004 because Compustat Global provides time-varying auditor identification in this period. However, Compustat Global is known to have an auditor miscoding problem for firms in Japan, South Korea, India, and Pakistan after 2004, where Big 4 firms operate under the names of local affiliates (Francis and Wang 2008; Francis et al. 2013). Thus we supplement auditor identification using Worldscope for observations after 2004. Our results are robust to using alternative sources for auditor identification data.

[16] The number of sample countries used in this study is smaller than the numbers of Lel and Miller (2015) and Khurana and Wang (2019). Mainly due to a lack of auditor data, our sample excludes Colombia, the Czech Republic, Hungary, Luxembourg, Sri Lanka, Venezuela, and Zimbabwe, which are used in those studies. In contrast, our sample includes Italy, South Africa, Spain, and Sweden, which are excluded by the two previous studies.

Table 1 Sample distribution

Panel A: Sample selection

Sample Refinement Procedures	Obs. Deleted	Obs. Remained
Firm-year observations in the Worldscope database for the period of 1986 — 2009 from countries that passed takeover laws during the period or countries that never passed takeover laws during the period or before		202,761
Drop observations from financial firms	(31,054)	171,707
Drop observations with missing values on auditor identification	(12,996)	158,711
Drop observations with missing values on other required variables	(41,342)	117,369
Final sample		117,369

Panel B: Takeover law status across countries

Country	Observations	Enactment year	Name of the law
Argentina	249	N/A	
Austria	850	1998	Takeover Act
Brazil	1,319	N/A	
Chile	404	2000	Tender Offer Act
China	9,454	N/A	
Denmark	1,712	N/A	
France	6,767	N/A	
Germany	7,119	2002	Takeover Act
Greece	1,369	N/A	
India	4,806	1997	Substantial Acquisition of Shares and Takeovers
Indonesia	2,052	1998	M&A Regulations (Government regulation No. 27/1998 and Presidential Decree No. 96 and No. 118)
Ireland	776	1997	Takeover Panel Act
Israel	856	N/A	
Italy	2,348	1992	Public Tender Offer
Japan	40,550	N/A	
Malaysia	6,460	1998	Code on takeovers and mergers
Mexico	736	N/A	
New Zealand	805	2001	Takeovers Code
Norway	1,723	N/A	
Pakistan	905	2000	Ordinance on substantial acquisition of shares and takeovers of listed companies
Peru	232	N/A	
Philippines	763	1998	Tender Offer Rules
Poland	1,061	N/A	
Portugal	496	N/A	
South Africa	2,111	1991	Code on Takeovers and Mergers
South Korea	2,644	N/A	
Spain	1,372	1991	Public Takeover Offerings (Royal Decree 1197/1991)

Table 1 (Continued)

Sweden	3,040	1991	Industry and Commerce Stock Exchange Committee Takeover Standard, Financial Instruments Trading Act
Switzerland	2,656	2004	Federal Act on Merger, Demerger, Transformation, and Transfer of Assets
Taiwan	7,478	2002	Business Mergers and Acquisitions Act
Thailand	3,136	N/A	
Turkey	1,120	N/A	
Total	117,369		

This table presents the sample distribution. Panel A shows the sample refinement procedures. Panel B presents the number of observations and the takeover law status for each country. We obtain information on takeover laws from Lel and Miller (2015), Nenova (2006), and various online and offline sources such as International Comparative Legal Guides, the International Financial Law Review, and the International Bar Association

countries. We obtain information on takeover laws around the world from Lel and Miller (2015), Nenova (2006), and other sources. Among the 32 sample countries, 16 treatment countries enacted takeover laws during our sample period (N = 43,945) and 16 control countries never passed takeover laws before or during the same period (N = 73,424).[17] Japan has the largest number of observations (N = 40,550), and China and Taiwan follow Japan in terms of sample size (N = 9,454 and 7,478, respectively).

Table 2 reports descriptive statistics for our research variables, beginning with summary statistics for variables used in the auditor selection model. The mean of *BIG4* is 0.504, indicating that 50.4 percent of observations are audited by one of the Big 4 auditors. We find that the mean of *POST*×*TREAT* is 0.307, suggesting that 30.7 percent of the observations in our full sample are subject to M&A laws. The mean of *TREAT* is 0.374, indicating that 37.4 percent of our firm-year observations are retrieved from firms in countries that enacted M&A laws during the sample period. Table 2 also presents descriptive statistics for country-level control variables and variables used in additional analyses.[18]

[17] We have checked whether any of the 16 control-group countries have enacted new M&A laws since Lel and Miller's (2015) sample period from 1992 to 2003. Following Lel and Miller's methodology, we have confirmed that none of the control countries enacted such laws until the end of our sample period.

[18] In Table 2, the number of observations for variables used in the debt covenant analysis (9,201 observations) is much smaller than those of other variables because we require each observation in the analysis to have either loan data from Dealscan or bond data from Thomson One. The number of observations for the audit fee variable (*AUDFEE*) is also small because many observations have a missing value for audit fees in Worldscope. (See Section 7.2 for more details.).

Table 2 Descriptive statistics

Variables	Observations	Mean	Std. Dev	Q1	Median	Q3
Variables used in the auditor selection analysis						
BIG4	117,369	0.504	0.500	0.000	1.000	1.000
POST×*TREAT*	117,369	0.307	0.461	0.000	0.000	1.000
TREAT	117,369	0.374	0.484	0.000	0.000	1.000
SIZE	117,369	19.447	1.722	18.288	19.324	20.484
LEV	117,369	0.528	0.208	0.380	0.542	0.682
ROA	117,369	0.053	0.097	0.021	0.054	0.097
MB	117,369	1.378	0.874	0.914	1.123	1.504
NGS	117,369	1.942	1.665	1.000	1.000	2.000
NBS	117,369	3.217	1.880	2.000	3.000	4.000
INVREC	117,369	0.352	0.187	0.209	0.345	0.479
ISSUE	117,369	0.244	0.430	0.000	0.000	0.000
LOSS	117,369	0.155	0.362	0.000	0.000	0.000
CURR	117,369	1.879	1.664	1.043	1.418	2.090
ATURN	117,369	1.021	0.610	0.608	0.911	1.298
CRLST	117,369	0.064	0.245	0.000	0.000	0.000
GDP	117,369	0.238	0.159	0.061	0.280	0.358
REGQUAL	117,369	0.778	0.586	0.484	0.853	1.191
CH_FR	117,369	0.012	0.045	0.000	0.000	0.000
CGRI	117,369	0.692	0.462	0.000	1.000	1.000
ASD	117,369	0.525	0.184	0.421	0.499	0.579
ACCENF	117,369	1.663	2.686	0.000	0.000	6.000
INF	117,369	2.298	4.439	0.100	1.500	3.000
Variables used in the cross-sectional analysis						
NDEALS	113,231	0.092	0.070	0.038	0.075	0.127
$DEALS	113,231	0.024	0.026	0.009	0.017	0.030
Variables used in the channel analysis						
LNBS	113,662	3.082	1.982	2.000	3.000	4.000
Δ*Lev*	117,369	0.001	0.084	−0.031	-0.003	0.030
Δ*Investment*	116,781	−0.006	0.164	−0.048	0.000	0.039
ANTIDIR	117,369	3.800	1.123	3.500	4.500	4.500
AUDLIAB	106,854	0.546	0.229	0.330	0.660	0.660
Variables used in the debt covenant analysis						
ACOV	9,201	0.052	0.222	0.000	0.000	0.000
NACOV	9,201	0.093	0.290	0.000	0.000	0.000
PPE	9,201	0.400	0.242	0.220	0.361	0.536
DB_AMT	9,201	2.916	3.151	−0.159	3.646	5.576
DB_MATU	9,201	3.683	0.754	3.178	3.871	4.111
Variables used in the analysis for the informativeness of earnings						
RET	117,369	−0.005	0.570	−0.289	−0.067	0.169
E	117,369	0.038	0.763	0.003	0.039	0.088
TACC	117,369	−0.104	0.246	−0.133	−0.046	−0.006

Table 2 (continued)

Variables	Observations	Mean	Std. Dev	Q1	Median	Q3
Variables used in the analysis for audit quality						
QAO	85,862	0.013	0.111	0.000	0.000	0.000
LQAO	85,862	0.012	0.113	0.000	0.000	0.000
AGE	85,862	11.215	5.969	6.000	10.000	15.000
Erroneous_Opinion	85,862	0.040	0.196	0.000	0.000	0.000
Variables used in the audit fee analysis						
AUDFEE	19,867	12.018	1.650	10.831	12.054	13.002

This table shows descriptive statistics for variables used in the regression analyses. It presents the number of observations, the mean, the standard deviation, the 25th percentile (Q1), the median, and the 75th percentile (Q3) of each variable. See the Appendix Table 11 for variable definitions

4 Baseline results

4.1 The effects of M&A laws on auditor selection

To formally test whether the enactment of M&A laws affects auditor selection, we estimate the DiD regression in Eq. (1) and report the results in Table 3. Column (1) shows the results using the full sample from 1986 to 2009. We find that the coefficient on $POST \times TREAT$ is positive and significant (0.225, z-statistic = 3.443), indicating that the demand for Big 4 auditors increases following the enactment of M&A laws.[19] Also, the estimated coefficient of 0.225 is economically significant. For average firms in treatment countries (i.e., those that enacted M&A laws), the predicted probability of hiring a Big 4 auditor is 5.6 percentage points higher in the post-law period than in the pre-law period.[20] The coefficient on *TREAT* is also positive and significant, implying that there is a significant difference between treatment and control countries in terms of the demand for Big 4 auditors in the pre-law period ($POST = 0$). The full sample results in Column (1) indicate that the enactment of M&A laws leads to a significant increase in the demand for Big 4 auditors; this

[19] An untabulated analysis shows that the Pearson correlation coefficient between *BIG4* and $POST \times TREAT$ is 0.20, and it is significant at the 1% level.

[20] We estimate the effect of M&A law enactment on the probability of hiring a Big 4 auditor using the following procedures. From the logistic regression model in Column (1) of Table 3, we first calculate a log odds ratio (X) by multiplying the mean value of each variable by its coefficient and adding them up. Then we convert the log odds ratio into a predicted probability using exp(X) / (1 + exp(X)). According to this formula, the predicted probability of hiring a Big 4 auditor is 54.9% (49.3%) when $POST \times TREAT$ equals 1 (0) in treatment countries ($TREAT = 1$).

Table 3 The effect of M&A laws on auditor selection

	(1)	(2)	(3)	(4)
Dependent =	*BIG4*	*BIG4*	*BIG4*	*BIG4*
Sample =	Full sample	Full sample (at least 1 obs. in both the pre- and post-law periods for each treatment firm)	Reduced sample	Reduced sample (at least 1 obs. in both the pre- and post-law periods for each treatment firm)
POST*×*TREAT	**0.225*****	**0.120****	**0.293*****	**0.239*****
	(3.443)	**(2.046)**	**(4.522)**	**(4.383)**
TREAT	0.333***	0.610***	0.334***	0.478***
	(4.734)	(7.949)	(4.773)	(5.910)
SIZE	0.206***	0.170***	0.172***	0.145***
	(15.919)	(11.161)	(12.137)	(8.670)
LEV	−1.169***	−1.054***	−1.173***	−1.144***
	(−11.927)	(−9.065)	(−10.835)	(−8.808)
ROA	1.217***	1.329***	1.032***	1.079***
	(7.509)	(6.530)	(5.617)	(4.716)
MB	0.042***	0.009	0.072***	0.067***
	(2.607)	(0.456)	(4.183)	(3.336)
NGS	0.003	0.001	−0.007	−0.012
	(0.319)	(0.046)	(−0.607)	(−0.851)
NBS	0.023***	0.057***	0.045***	0.085***
	(2.635)	(5.810)	(4.763)	(7.827)
INVREC	−0.560***	−0.483***	−0.444***	−0.398***
	(−5.133)	(−3.635)	(−3.651)	(−2.683)
ISSUE	0.172***	0.265***	0.144***	0.222***
	(6.686)	(8.641)	(5.153)	(6.638)
LOSS	0.179***	0.148***	0.101***	0.082*
	(5.454)	(3.880)	(2.632)	(1.836)
CURR	−0.033***	−0.011	−0.042	−0.029**
	(−3.354)	(−0.855)	(−3.806)	(−2.013)
ATURN	0.194***	0.192***	0.153***	0.166***
	(6.145)	(5.090)	(4.325)	(3.944)
CRLST	0.419***	0.367***	0.406***	0.373***
	(5.175)	(4.145)	(4.942)	(4.060)
GDP	−4.384***	−3.645***	−4.832***	−4.557***
	(−20.328)	(−13.870)	(−19.743)	(−15.294)
REGQUAL	1.834***	1.138***	1.769***	1.226***
	(34.004)	(17.506)	(31.236)	(17.033)
CH_FR	2.488***	1.609***	1.806***	1.237***
	(12.072)	(6.871)	(9.323)	(5.181)
CGRI	0.292***	0.431***	0.196***	0.357***
	(5.531)	(6.979)	(3.743)	(5.897)

Table 3 (continued)

	(1)	(2)	(3)	(4)
Dependent =	*BIG4*	*BIG4*	*BIG4*	*BIG4*
Sample =	Full sample	Full sample (at least 1 obs. in both the pre- and post-law periods for each treatment firm)	Reduced sample	Reduced sample (at least 1 obs. in both the pre- and post-law periods for each treatment firm)
ASD	0.908***	0.021	0.725***	−0.221
	(5.624)	(0.095)	(4.029)	(−0.873)
ACCENF	0.055***	0.041***	0.067***	0.053***
	(6.884)	(3.775)	(7.518)	(4.602)
INF	−0.004	0.006*	0.001	0.004
	(−1.417)	(1.947)	(0.369)	(1.203)
Constant	−2.832***	0.054	−4.260***	−2.862***
	(−3.881)	(0.048)	(−10.624)	(−6.151)
Legal FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	117,369	85,036	93,538	67,642
Pseudo R^2	0.199	0.183	0.202	0.185

This table presents the results for logistic regressions that estimate the effect of M&A laws on auditor selection. Column (1) shows the results for the full sample from 1986 to 2009. The sample period begins five years before the first enactment year of treatment countries (i.e., 1991 in South Africa, Spain, and Sweden) and ends five years after the last enactment year (i.e., 2004 in Switzerland). Column (2) presents the results for the constant sample that requires at least one observation in both the pre- and post-law periods for each treatment firm. It includes all observations from control countries over the period of 1986 to 2009. Column (3) shows the results for the reduced sample from 1988 to 2007, which begins three years before the first enactment year of treatment countries and ends three years after the last enactment year. Column (4) presents the results for the constant sample that requires at least one observation in both the pre- and post-law periods for each treatment firm over the period of 1988 to 2007. It includes all observations from control countries over the reduced sample period. The z-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

change in demand holds, even after controlling for differences between the treatment and control samples in the pre-law period.[21]

Columns (2) to (4) present the regression results for Eq. (1) using alternative samples. In Column (2), we use the same sample period (1986–2009), but we further

[21] The results for firm-level control variables are generally consistent with our predictions and the literature. The demand for Big 4 auditors is positively associated with firm size (*SIZE*), profitability (*ROA*), market-to-book ratio (*MB*), the number of business segments (*NBS*), external financing (*ISSUE*), asset turnover ratio (*ATURN*), and the cross-listing indicator (*CRLST*); it is negatively associated with leverage (*LEV*), the level of inventories and receivables (*INVREC*), and current ratio (*CURR*). The results for country-level control variables show that the demand for Big 4 auditors relates positively to regulatory quality (*REGQUAL*), changes in the financial reform index (*CH_FR*), the passage of corporate-governance reforms (*CGRI*), the anti-self-dealing index (*ASD*), and the strength of enforcement actions (*ACCENF*); it relates negatively to gross domestic product per capita (*GDP*).

require at least one observation in both the pre- and post-law periods for each treatment firm. The coefficient on *POST*×*TREAT* remains positive and significant (0.120, z-statistic = 2.046). In Columns (3) and (4), we shorten the sample period to mitigate the influence of confounding events on our results; to this end, we restrict the sample period to 1988 − 2007, starting three years before the first enactment year of treatment countries (i.e., 1991) and ending three years after the last enactment year (i.e., 2004). Similar to Column (2), Column (4) further requires at least one observation in both the pre- and post-law periods for each treatment firm. The results in Columns (3) and (4) are consistent with those in the previous columns. In summary, our findings in Table 3 support the hypothesis that the demand for Big 4 auditors increases in treatment countries after the passage of M&A laws and to a greater extent, compared to the corresponding changes in the demand for Big 4 auditors in control countries. This evidence is consistent with the view that takeover pressure encourages managers and boards to increase their demand for high-quality auditors.[22]

4.2 Parallel trends assumption and treatment effect heterogeneity

In the preceding analyses, we employ standard DiD regressions to test the impact of external takeover threats on auditor selection. To further examine whether the standard DiD tests capture the causal effects of M&A laws correctly, we employ several alternative specifications, including parallel trends analyses and event-study DiD estimations.

First, we examine whether our DiD analysis satisfies the parallel trends assumption. A critical assumption underlying the standard DiD analysis is that the treatment and control samples have parallel trends in the pre-event period. To evaluate whether this assumption is satisfied, we examine the dynamic effects of the M&A laws' passage on auditor selection (Bertrand and Mullainathan 2003; Kim et al. 2019a; Cannon et al. 2020). Specifically, we replace *POST* in the preceding regressions with three indicator variables—$YEAR_{(t-1)}$, $YEAR_{(t)}$, and $YEAR_{(\geq t+1)}$—that indicate one year before the enactment of M&A laws, the year of enactment, and one or more years after the enactment, respectively; we add the interaction terms of the three indicator variables with *TREAT* to Eq. (1).[23]

Table 4 presents the results for the parallel trends test.[24] As shown in Column (1), we find that the coefficient on $TREAT \times YEAR_{(t-1)}$ is statistically insignificant,

[22] We perform the following additional tests and confirm that our results are robust to using (1) alternative data sources for auditor identification, such as Compustat Global and Worldscope; (2) alternative sample selection procedures, such as excluding observations with M&A transactions or observations during the Asian financial crisis, requiring nonmissing observations for all years from t − 5 to t + 5 surrounding the M&A law enactment year t, and using matched samples; (3) alternative model specifications, such as weighted least squares regressions, country or firm fixed effects regressions, country or industry clustering adjustment, and regressions with a treatment-specific time trend; and (4) auditor changes analyses. The results are available in the online appendix.

[23] We do not include the standalone variables $YEAR_{(t-1)}$, $YEAR_{(t)}$, and $YEAR_{(\geq t+1)}$ because they are redundant, due to the inclusion of their interaction terms with *TREAT*. This specification resembles Eq. (1), which excludes the standalone variable *POST*.

[24] For brevity, we suppress the coefficients on the control variables in Tables 4, 5, 6 and 10. The full results are available in the online appendix.

Table 4 Parallel trends analysis

Dependent =	(1) *BIG4*	(2) *BIG4*
$TREAT \times YEAR_{(t-2)}$		−0.080
		(−1.091)
$TREAT \times YEAR_{(t-1)}$	−0.005	−0.026
	(−0.065)	(−0.325)
$\mathbf{TREAT \times YEAR_{(t)}}$	**0.331*****	**0.308*****
	(4.212)	**(3.564)**
$\mathbf{TREAT \times YEAR_{(t+1)}}$		**0.462*****
		(5.322)
$\mathbf{TREAT \times YEAR_{(\geq t+1)}}$	**0.210*****	
	(2.750)	
$\mathbf{TREAT \times YEAR_{(\geq t+2)}}$		**0.156***
		(1.818)
TREAT	0.341***	0.373***
	(4.355)	(4.358)
Control variables	YES	YES
Legal FE	YES	YES
Year FE	YES	YES
Industry FE	YES	YES
Observations	117,369	117,369
Pseudo R^2	0.199	0.200

This table presents the results for the parallel trends analyses as an alternative specification for DiD analyses. In Column (1), we replace the *POST* indicator in Eq. (1) with three indicators: one year before the M&A-law enactment year $YEAR_{(t-1)}$, the enactment year $YEAR_{(t)}$, and one or more years after the enactment year $YEAR_{(\geq t+1)}$. In Column (2), we replace the *POST* indicator with five indicators: two years before the enactment year $YEAR_{(t-2)}$, one year before the enactment year $YEAR_{(t-1)}$, the enactment year $YEAR_{(t)}$, one year after the enactment year $YEAR_{(t+1)}$, and two or more years after the enactment year $YEAR_{(\geq t+2)}$. The coefficients on control variables are suppressed for simplicity. The z-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

whereas those on $TREAT \times YEAR_{(t)}$ and $TREAT \times YEAR_{(\geq t+1)}$ are positive and significant. This finding is consistent with the view that the demand for high-quality auditors increases in the post-law period but not in the pre-law period. We find similar results when we expand the model by adding $TREAT \times YEAR_{(t-2)}$ and replacing $TREAT \times YEAR_{(\geq t+1)}$ with $TREAT \times YEAR_{(t+1)}$ and $TREAT \times YEAR_{(\geq t+2)}$. As reported in Column (2), while the coefficients on $TREAT \times YEAR_{(t-2)}$ and $TREAT \times YEAR_{(t-1)}$ are insignificant, those on $TREAT \times YEAR_{(t)}$, $TREAT \times YEAR_{(t+1)}$, and $TREAT \times YEAR_{(\geq t+2)}$ are all positive and significant. The results suggest that our baseline findings are unlikely to be driven by the violation of the parallel trends assumption.

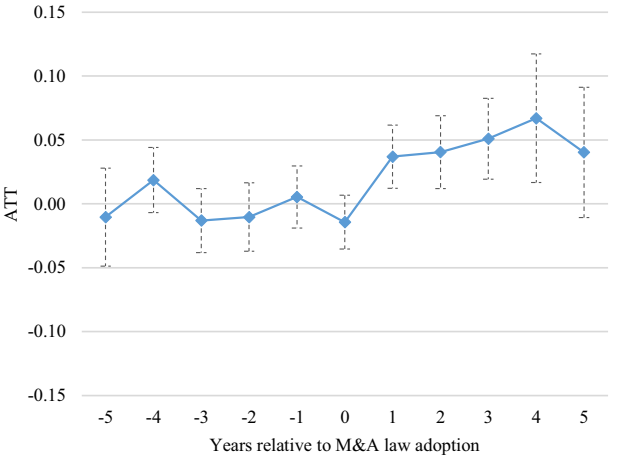
Second, we conduct the event-study DiD estimation to address the potential bias in our results from the staggered DiD regressions. According to Baker et al. (2022), staggered DiD analyses can lead to biased results in the presence of treatment effect heterogeneity; the bias may arise when already treated units act as effective comparison units and treatment effects vary across units and over time.[25] We expect our results to be less affected by this bias because (1) our sample excludes observations from countries that passed M&A laws before the beginning of our sample period and (2) our control sample includes many observations from countries that never passed M&A laws by the end of our sample period (63% of the full sample). Nevertheless, we further check the influence of potential bias by employing Callaway and Sant'Anna's (2021) estimation suggested by Baker et al. (2022). For this event-study DiD estimation, we construct two types of control groups. The first control group consists of firms in countries that never passed M&A laws during our sample period (i.e., never-treated firms), while the second control group consists of firms in countries that never passed M&A laws during our sample period *and* those that did not pass M&A laws until year *t* (i.e., never-treated and not-yet-treated firms).

Figure 1 presents the results from the event-study DiD estimation for the period of [t − 5, t + 5], where *t* is the enactment year of the M&A laws. This method estimates each cohort-time-specific treatment effect and aggregates them to measure the *average treatment effect on the treated* (ATT). Our sample has eight cohorts based on eight unique enactment years of M&A laws (i.e., 1991, 1992, 1997, 1998, 2000, 2001, 2002, and 2004). Panel A illustrates the results when we use the never-treated firms as a control group. While the ATT for the pre-law period is − 0.002 with a z-statistic of − 0.42, the corresponding ATT for the post-law period is 0.037 with a z-statistic of 2.86. The difference in ATT between the pre- and post-law periods is significant at the 1% level (Chi-square = 7.99). The results indicate that our main finding of a significant increase in the demand for Big 4 auditors after the passage of M&A laws is robust to this alternative estimation. We find similar results when we use the never-treated and not-yet-treated firms as a control group. As depicted in Panel B, while the pre-law period ATT is − 0.007 with a z-statistic of − 0.77, the post-law period ATT is 0.033 with a z-statistic of 2.60. The difference in ATT between the pre- and post-law periods is significant at the 1% level (Chi-square = 7.31). The results in Fig. 1 reveal that our main findings remain robust, even after the treatment effect heterogeneity is accounted for.[26]

[25] Specifically, our results for the effects of M&A laws might be biased due to the influence of already treated countries on the analysis of later-treated countries. For example, South Africa, Spain, and Sweden passed M&A laws in 1991, the first enactment year in our sample. Italy, which passed M&A laws in 1992, is compared with not only countries that have not passed M&A laws by 1992 but also the three treatment countries that already enacted M&A laws in 1991. Therefore the inclusion of already treated countries (e.g., South Africa, Spain, and Sweden) in the analysis of later treated countries (e.g., Italy) might yield biased results.

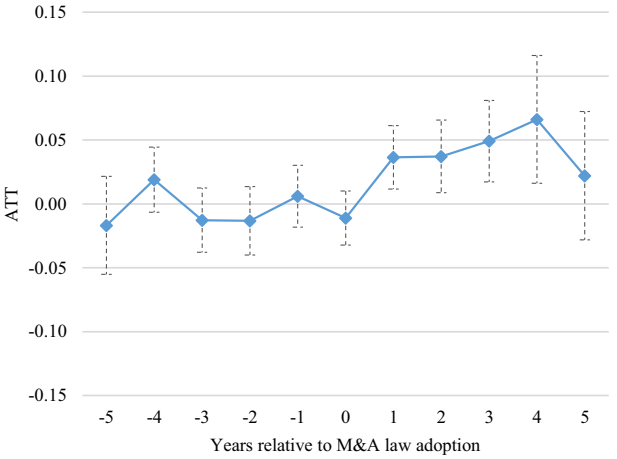
[26] Our results are robust to using the stacked regression as an alternative method of an event-study DiD estimation (Baker et al. 2022). The results are available in the online appendix.

Panel A: Never-treated firms as a control group



ATT(pre) = −0.002 with z-statistic = −0.42
ATT(post) = 0.037*** with z-statistic = 2.86
Chi-square statistic for the difference in ATTs = 7.99***

Panel B: Never-treated and not-yet-treated firms as a control group



ATT(pre) = −0.007 with z-statistic = −0.77
ATT(post) = 0.033*** with z-statistic = 2.60
Chi-square statistic for the difference in ATTs = 7.31***

Fig. 1 Event-study DiD estimators. This figure shows the average treatment effect on the treated (ATT) estimated from the Callaway and Sant'Anna (2021) method. Panel A uses never-treated firms as a control group, while Panel B uses never-treated and not-yet-treated firms as a control group. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed)

5 Cross-sectional tests and channel analyses

5.1 Cross-sectional tests

The preceding analyses suggest that the takeover pressure heightened by the passage of M&A laws increases the demand for high-quality audits by Big 4 auditors. To provide the context for our main results, we examine whether the effects of M&A law enactment are associated with country-level takeover intensity. We conjecture that the positive effects of M&A law enactment on the demand for Big 4 auditors are more pronounced when firms operate in countries with takeover activities that are more intense, and thus where takeover threats are more credible. We measure the intensity of takeovers for each country-year using the number of M&A deals (*NDEALS*) and the dollar amount of M&A deals (*$DEALS*) in the previous year.[27] We retrieve the M&A data from the Thomson SDC Platinum database.

Table 5 presents the results for subsample regressions. We split the full sample using the sample median of *NDEALS* in Columns (1) and (2) and by the sample median of *$DEALS* in Columns (3) and (4). Consistent with our expectation, we find that the positive effects of M&A law enactment on the demand for Big 4 auditors are concentrated in the subsamples exposed to more intense M&A activities. The coefficient on *POST*×*TREAT* is positive and highly significant in the subsamples with a large number and dollar amount of M&A deals in Columns (1) and (3), respectively. In contrast, the corresponding coefficient is statistically insignificant in the subsamples with a small number and dollar amount of M&A deals in Columns (2) and (4), respectively.[28] As shown in the bottom row of Table 5, we further find that the differences in the magnitude of the coefficients on *POST*×*TREAT* between each pair of subsamples are both statistically significant at the 10% level or less. Collectively, the results suggest that the impact of the enactment of M&A laws on the demand for Big 4 auditors is stronger when firms face greater takeover pressure.

5.2 Channel analyses

In this subsection, we examine two potential channels through which the enactment of M&A laws may affect auditor selection. We expect that the effects of M&A laws on auditor selection are more pronounced when managers have greater incentives to reduce agency costs (*managerial commitment channel*) and when the board has stronger incentives to monitor managers in the presence of a takeover threat (*board monitoring channel*).

[27] We require each deal to have a public acquirer, a public target, and a deal amount above US$1 million. Due to missing deal data, the sample used in this analysis is smaller than the sample in Table 3.

[28] The results are robust to using two alternative proxies for the intensity of M&A: (1) the country-level takeover index (Nenova 2006) and (2) the firm-level probability of being a takeover target. We estimate the probability of being targeted using our firm-level data and the regression model in Table 5 of Lel and Miller (2015).

Table 5 Cross-sectional analyses for the effect of M&A laws on auditor selection

	(1)	(2)	(3)	(4)
Dependent =	*BIG4*	*BIG4*	*BIG4*	*BIG4*
Sample =	*NDEALS* above median	*NDEALS* below median	*$DEALS* above median	*$DEALS* below median
POST × ***TREAT***	**0.858*****	**0.096**	**0.204*****	**−0.257**
	(7.463)	**(1.050)**	**(2.779)**	**(−1.087)**
TREAT	0.209*	0.252***	0.625***	1.560***
	(1.713)	(2.850)	(6.364)	(4.863)
Control variables	YES	YES	YES	YES
Legal FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	56,601	56,630	55,963	57,268
Pseudo R^2	0.205	0.249	0.217	0.234
Test for the difference in the coefficients on *POST*×*TREAT* between each pair of subsamples				
Chi^2-statistics	26.73***		3.46*	
(p-value)	(0.000)		(0.063)	

This table presents cross-sectional analyses for the effect of M&A laws on auditor selection. Columns (1) and (2) show the regression results for subsamples partitioned by the country-level median of the number of M&A deals divided by the total number of public firms in the prior year (*NDEALS*). Columns (3) and (4) show the regression results for subsamples partitioned by the country-level median of the dollar amount of deals divided by the total market capitalization of public firms in the prior year (*$DEALS*). The coefficients on control variables are suppressed for simplicity. The z-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

First, we examine the managerial commitment channel through which the passage of M&A laws increases the demand for Big 4 auditors. We expect that managers under takeover pressure have greater incentives to appoint high-quality auditors as a commitment to high-quality financial reporting when their firms have more severe agency problems. To test this expectation, we measure the extent of agency conflicts using (1) the number of business segments in the previous year (*LNBS*), (2) the change in leverage (Δ*Lev*), and (3) the change in investment (Δ*Investment*). Firms with larger *LNBS* tend to bear greater agency costs because corporate outsiders have greater difficulty in monitoring managers and evaluating firm performance (Berger and Hann 2003). In addition, managers who face takeover threats have stronger incentives to increase financial leverage and cut inefficient capital investments to reduce agency conflicts and to mitigate the chances of hostile takeovers (Jensen 1988; Berger et al. 1997; Servaes and Tamayo 2014). Thus the increase in leverage and the reduction of investments in response to the passage of M&A laws reflect managerial efforts to address severe agency problems (Khurana and Wang 2019).

Table 6 Channel analyses for the effect of M&A laws on auditor selection

Panel A: Managerial commitment channel						
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent =	*BIG4*	*BIG4*	*BIG4*	*BIG4*	*BIG4*	*BIG4*
Sample =	*LNBS* above median	*LNBS* below median	Δ*Lev* above median	Δ*Lev* below median	Δ*Investment* below median	Δ*Investment* above median
POST **×** ***TREAT***	**0.345*****	**0.065**	**0.310*****	**−0.027**	**0.465*****	**−0.079**
	(3.628)	**(0.738)**	**(4.208)**	**(−0.305)**	**(6.563)**	**(−0.892)**
TREAT	0.072	0.586***	0.280***	0.473***	0.042	0.614***
	(0.739)	(6.266)	(3.635)	(5.122)	(0.546)	(6.909)
Control variables	YES	YES	YES	YES	YES	YES
Legal FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Observations	55,645	58,017	58,848	58,521	57,835	58,946
Pseudo R^2	0.204	0.217	0.231	0.191	0.223	0.188
Test for the difference in the coefficients on *POST*×*TREAT* between each pair of subsamples						
Chi^2-statistics	4.67**		8.56***		23.00***	
(p-value)	(0.031)		(0.004)		(0.000)	
Panel B: Board monitoring channel						
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent =	*BIG4*	*BIG4*	*BIG4*	*BIG4*	*BIG4*	*BIG4*
Sample =	*ANTIDIR* above median	*ANTIDIR* below median	*ASD* above median	*ASD* below median	*AUDLIAB* above median	*AUDLIAB* below median
POST **×** ***TREAT***	**0.763*****	**0.405*****	**0.687*****	**0.025**	**0.536*****	**−0.036**

Table 6 (continued)

	(4.139)	(5.139)	(5.313)	(0.281)	(5.279)	(−0.307)
TREAT	−1.582***	0.343***	−0.294*	1.090***	0.830***	2.219***
	(-3.728)	(3.385)	(-1.899)	(9.092)	(7.128)	(10.382)
Control variables	YES	YES	YES	YES	YES	YES
Legal FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Observations	60,038	57,331	78,888	38,481	78,397	28,457
Pseudo R^2	0.215	0.243	0.229	0.165	0.232	0.168
Test for the difference in the coefficients on *POST*×*TREAT* between each pair of subsamples						
Chi^2-statistics	3.19*		17.79***		13.32***	
(p-value)	(0.075)		(0.000)		(0.000)	

This table presents channel analyses for the effect of M&A laws on auditor selection. Panel A shows the managerial commitment channel. Columns (1) and (2) show the regression results for subsamples partitioned by the firm-level median of the number of business segments in the prior year (*LNBS*). Columns (3) and (4) report the regression results for subsamples partitioned by the firm-level median of the changes in leverage (Δ*Lev*). Columns (5) and (6) present the regression results for subsamples partitioned by the firm-level median of the changes in investment (Δ*Investment*). Panel B shows the board monitoring channel. Columns (1) and (2) show the regression results for subsamples partitioned by the country-level median of anti-director index (*ANTIDIR*). Columns (3) to (4) report the regression results for subsamples partitioned by the country-level median of anti-self-dealing index (*ASD*). Columns (5) to (6) present the regression results for subsamples partitioned by the country-level median of auditor legal liability (*AUDLIAB*). The coefficients on control variables are suppressed for simplicity. The z-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

Panel A of Table 6 presents the results for the managerial commitment channel. Columns (1) and (2) report the regression results for the subsamples partitioned by the sample median of *LNBS*. The coefficient on *POST*×*TREAT* is positive and significant for the subsample with the above-median *LNBS* (Column (1)) but insignificant for the subsample with the below-median *LNBS* (Column (2)). Columns (3) − (4) and (5) − (6) present the regression results for the subsamples partitioned by the sample medians of Δ*Lev* and Δ*Investment*, respectively. The coefficients on *POST*×*TREAT* are positive and significant in the subsamples with the above-median Δ*Lev* and the below-median Δ*Investment* (Columns (3) and (5), respectively) but insignificant in the other subsamples (Columns (4) and (6), respectively). As shown at the bottom of Panel A, the differences in the coefficients on *POST*×*TREAT* between each pair of subsamples are significant at the 5% level or less for all three pairs. The results indicate that managers facing greater agency problems are more likely to increase their demand for Big 4 auditors as a commitment to higher-quality financial reporting. Overall the results in Panel A of Table 6 are consistent with the prediction for the managerial commitment channel.

Second, we investigate the board monitoring channel through which the M&A law enactment increases the demand for Big 4 auditors. Strong legal protection for shareholders increases potential litigation risk for board members and hence incentivizes them to scrutinize managers more closely in response to increased takeover threats. Also, the board's monitoring via the appointment of high-quality auditors becomes more effective when auditors have stronger incentives to improve the quality of their assurance services to reduce their exposure to litigation risk (Khurana and Raman 2004). Therefore we predict that the disciplinary effect of takeover pressure on increasing the board's demand for Big 4 auditors is more pronounced in countries with stronger investor protection and countries with higher auditor legal liability. To test this conjecture, we employ three country-level factors that strengthen the efficacy of board monitoring: (1) the anti-director index (*ANTIDIR*), (2) the anti-self-dealing index (*ASD*), and (3) the auditor legal liability index (*AUDLIAB*).[29] We obtain the first two indexes from Djankov et al. (2008) and the last one from La Porta et al. (2006).

Panel B of Table 6 shows the results for the board monitoring channel. Columns (1) to (6) report the regression results for subsamples partitioned by the country-level medians of *ANTIDIR*, *ASD*, and *AUDLIAB*, respectively. We find that the coefficients on *POST*×*TREAT* are positive and significant in the subsamples with high values on the anti-director index, anti-self-dealing index, and auditor legal liability index in Columns (1), (3), and (5), respectively. In contrast, the corresponding coefficients for the subsamples with low values on these indexes are positive and

[29] The country-level subsample analyses in Tables 5 and 6 may not be independent because the subsamples partitioned by country-level variables (*NDEALS*, *$DEALS*, *ANTIDIR, ASD*, and *AUDLIAB*) may overlap, due to the correlations among the variables. We find that the correlation coefficients between the country-level variables are less than 0.5, except those for three variables (*ANTIDIR*, *ASD*, and *AUDLIAB*) reflecting similar constructs, and that some of the variables are even negatively correlated. The results suggest that the lack of independence across the subsample analyses cannot fully explain our findings in Tables 5 and 6.

significant only in Column (2) and nonsignificant in Columns (4) and (6). More importantly, the test statistics at the bottom of Panel B reveal that the differences in the coefficients on *POST*×*TREAT* between each pair of subsamples are consistently significant at the 10% level or less for all three pairs. This finding suggests that the heightened takeover threat in the post-law period increases the demand for Big 4 auditor verification mainly in countries with higher (i.e., above-median) investor legal protection and auditor legal liability.[30] These results support the prediction of the board monitoring channel and suggest that the M&A law passage strengthens the board's incentive to monitor managerial reporting, which in turn boosts its demand for high-quality auditor verification and assurance in the post-law period.

6 M&A laws and the external demand for high-quality audits

The results in the preceding sections suggest that corporate insiders (i.e., managers and boards) increase their demand for high-quality audits following the enactment of M&A laws. In this section, we turn our attention to whether corporate outsiders (i.e., creditors and investors) change their demand for external audits in response to the passage of M&A laws.

6.1 Creditor demand for high-quality audits: Debt covenant analysis

Creditors have strong incentives to monitor borrowers under takeover pressure because borrowing firms tend to increase financial leverage as a defense strategy in an active takeover market (Berger et al. 1997; Safieddine and Titman 1999; Servaes and Tamayo 2014). As discussed in Section 2, takeover pressure also plays a governance role in enhancing the quality of financial reporting (e.g., Khurana and Wang 2019; Balachandran et al. 2020).[31] If the external governance from takeover markets improves reporting quality—for example, by reducing the likelihood that firms misstate their accounting reports—creditors are likely to rely more on accounting information in screening and monitoring borrowers. The greater use of accounting numbers in debt contracts can further induce creditors to demand higher-quality audits (Baylis et al. 2017). Therefore, to the extent that the external governance from the market for corporate control increases financial reporting quality, one can predict that creditors are more likely to use accounting-based covenants in debt contracting than non-accounting covenants. To test this prediction, we estimate a logistic regression model.

[30] To examine the board monitoring channel, Khurana and Wang (2019) use not only country-level investor protection but also firm-level pay-performance sensitivity as cross-sectional partitioning variables. However, we cannot use the latter variable because the pay-performance sensitivity variable (estimated from the BoardEx database) has all missing values for the pre-law period of treatment countries in our sample. Our results are robust to using alternative proxies for country-level investor protection, such as the private enforcement index (La Porta et al. 2006) or government effectiveness (Kaufman et al. 2009).

[31] We confirm the positive effect of takeover pressure on financial reporting quality for our sample. Untabulated results show that the enactment of M&A laws leads to a significant decrease in three inverse measures of financial reporting quality: (1) the absolute value of discretionary accruals; (2) the incidence of reporting small earnings-per-share (EPS); and (3) the incidence of reporting small increases in EPS.

$$ACOV_{ijt}(or\ NACOV_{ijt}) = \beta_0 + \beta_1 POST_{jt} \times TREAT_j + \beta_2 TREAT_j + \beta_3 SIZE_{ijt} + \beta_4 LEV_{ijt} + \beta_5 ROA_{ijt} + \beta_6 MB_{ijt} + \beta_7 PPE_{ijt} + \beta_8 DB\_AMT_{ijt} + \beta_9 DB\_MAT_{ijt} + Legal\ \&\ Year\ \&\ Industry\ Fixed\ Effects + \varepsilon_{ijt}, \quad (2)$$

where, for firm i in country j in year t, the dependent variable is either the use of accounting covenants (*ACOV*) or the use of non-accounting covenants (*NACOV*). We define *ACOV* (*NACOV*) as an indicator variable that equals 1 if a debt contract contains at least one accounting (non-accounting) covenant and 0 otherwise.[32] The proportion of tangible assets (*PPE*) is defined as the property, plant, and equipment scaled by total assets. The debt amount (*DB_AMT*) is measured by the natural logarithm of the amount of debt in millions of US dollars. The debt maturity (*DB_MAT*) is defined as the natural logarithm of debt maturity measured in months. All other variables are as defined earlier. We obtain loan data from Dealscan and bond data from Thomson One, and we merge these two datasets with our main dataset using all available company identifiers.[33] Following Ball et al. (2015), we match debt-level variables to firm-level variables in the year immediately before the debt issuance. We require that all data for debt issuance date, debt amount, and debt maturity be available from the data sources identified above.[34]

Table 7 presents the results for the effects of M&A laws on the use of debt covenants. The first two columns show the results for the sample of bank loans. In Column (1), where the dependent variable is *ACOV*, the coefficient on *POST*×*TREAT* is positive and highly significant. In contrast, in Column (2), where the dependent variable is *NACOV*, the corresponding coefficient is not significant. The results indicate that banks are more likely to impose accounting covenants on borrowers in the post-law period than in the pre-law period, but they do not change their use of non-accounting covenants over the same period. Moreover, the coefficient on *POST*×*TREAT* is larger in magnitude for the *ACOV* regression in Column (1) (1.509, z-statistic = 7.126) than for the *NACOV* regression in Column (2) (0.306, z-statistic = 1.039). As shown at the bottom of the table, this difference in coefficient magnitude is highly significant (Chi-square = 11.01; $p < 0.001$). Our results are similar when we use the sample of public bonds, as shown in Columns (3) and (4); while the coefficients on *ACOV* and *NACOV* are both positive and significant, the difference in coefficient magnitude between the two regressions is highly significant (Chi-square = 139.48; $p < 0.001$). Taken together, the results in Table 7 show that creditors are more likely to use accounting-based covenants in their debt contracting after

[32] The results are robust to using the numbers of accounting covenants and non-accounting covenants, respectively, rather than the corresponding indicator variables.

[33] To match between Dealscan and our dataset, we first use the Dealscan-Compustat link file provided by Chava and Roberts (2008), supplement the matching with available company identifiers (i.e., tickers), and check the matched dataset manually by company name and country. To match between Thomson One and our dataset, we first use all available company identifiers (i.e., ISIN, SEDOL, and ticker) and supplement the results by manual matching. We do not use the Mergent FISD database because this database mainly covers publicly offered bonds in the United States, whereas our sample does not include US firms.

[34] When debt covenant data fields are blank and there are valid data for debt issuance date, debt amount, and debt maturity, we treat these cases as debt contracts with no covenants.

Table 7 The effect of M&A laws on debt covenants

	Loan covenants		Bond covenants	
	(1)	(2)	(3)	(4)
Dependent =	*ACOV*	*NACOV*	*ACOV*	*NACOV*
POST × ***TREAT***	**1.509*****	**0.306**	**5.027*****	**0.557*****
	(7.126)	**(1.039)**	**(14.909)**	**(3.229)**
TREAT	−0.294	−0.417	−4.751***	−0.192
	(−1.320)	(−1.162)	(−17.606)	(−1.219)
SIZE	−0.198***	−0.193***	−0.053	0.109***
	(−4.978)	(−2.729)	(−0.914)	(3.842)
LEV	−0.643***	−0.001	0.248	0.448*
	(−2.708)	(−0.002)	(0.578)	(1.888)
ROA	−1.384***	−1.625*	−1.414	−0.550
	(−2.828)	(−1.689)	(−1.137)	(−0.925)
MB	−0.139**	−0.032	0.173	0.200***
	(−2.217)	(−0.316)	(1.465)	(3.709)
PPE	0.255	−0.725*	−0.073	−0.268
	(1.433)	(−1.848)	(−0.153)	(−1.481)
DB_AMT	0.137***	0.377***	0.000	0.081***
	(5.124)	(6.617)	(0.003)	(3.851)
DB_MAT	0.115**	−0.023	0.075	0.049
	(1.976)	(−0.185)	(0.529)	(0.839)
Constant	−3.060***	−3.236**	−8.119***	−12.903***
	(−3.846)	(−2.221)	(−5.374)	(−18.481)
Legal FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	6,156	6,156	3,879	3,879
Pseudo R^2	0.326	0.357	0.276	0.190
Test for the difference in the coefficients on *POST*×*TREAT* between the regressions of *ACOV* and *NACOV*				
Chi^2-statistics	11.01***		139.48***	
(p-value)	(0.000)		(0.000)	

This table presents the results for logistic regressions that estimate the effect of M&A laws on the use of debt covenants. Columns (1) to (2) present the results for loan contracts, and Columns (3) to (4) report the results for bond contracts. Columns (1) and (3) show the effect of M&A laws on accounting covenants (*ACOV*), while Columns (2) and (4) show the results on non-accounting covenants (*NACOV*). The z-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

the passage of M&A laws, suggesting that their demand for external audits increases from the pre- to the post-law period (Baylis et al. 2017).[35]

6.2 Investor demand for high quality audits: Earnings informativeness analysis

Active takeover markets create strong incentives for investors to use financial statement information for performance evaluation. In particular, potential acquirers rely heavily on financial statements as a key source of information to identify underperforming firms and estimate the expected value creation in takeovers (Raman et al. 2013). Moreover, cross-border M&A markets further increase the demand for high-quality public disclosures, particularly because foreign acquirers have, at best, limited access to private information about potential targets.

Takeover pressure and investor monitoring associated therewith create investors' demand for high-quality financial reporting and thus improves external reporting quality. In this environment, the M&A law passage, which heightens takeover pressure and thus enhances financial reporting quality, would increase investors' reliance on accounting information in their valuation decisions. We therefore expect to observe stock returns more closely related to accounting earnings in the post-law period than in the pre-law period. To test this expectation, our analysis focuses on whether the price informativeness of accounting earnings increases following the passage of M&A laws. To this end, we estimate a return-earnings regression model.

$$RET_{ijt} = \beta_0 + \beta_1 POST_{jt} \times TREAT_j + \beta_2 TREAT_j + \beta_3 E_{ijt} \times POST_{jt} \times TREAT_j + \beta_4 E_{ijt} \times TREAT_j + \beta_5 E_{ijt} + Legal\ \&\ Year\ \&\ Industry\ Fixed\ Effects + \varepsilon_{ijt}, \tag{3}$$

where, for firm i in country j in year t, the dependent variable, RET, is the stock return for firm i minus the value-weighted market return over the fiscal year and E is earnings per share scaled by the beginning-of-year share price. All other variables are as previously defined.

Table 8 reports the estimated results for Eq. (3). As shown in Column (1), the coefficient on $E \times POST \times TREAT$ is positive and highly significant (0.222, t-statistic = 7.606), indicating that the informativeness of earnings increases following the passage of M&A laws. To further investigate the positive impact of takeover pressure on earnings informativeness, we split the full sample into two subsamples based on the median value of accruals ($TACC$). Columns (2) and (3) present the results for the subsample regressions. We find that the increase in the informativeness of earnings from the pre- to the post-law period (as reflected in the positive coefficient on $E \times POST \times TREAT$) is significantly greater for the subsample with high accruals (Column (2)) than for the subsample with low accruals (Column (3)). This finding suggests that accruals have higher information quality after the passage of M&A laws; thus investors incorporate more accruals information into their valuation

[35] Untabulated results show that the increased use of accounting covenants is more pronounced in countries with high auditor legal liability than those with low auditor legal liability. This result suggests that creditors rely more on accounting information when auditors have stronger incentives to provide high-quality assurance to mitigate their exposure to litigation risk.

Table 8 The effect of M&A laws on the informativeness of earnings

	(1)	(2)	(3)
Dependent =	*RET*	*RET*	*RET*
Sample =	Full sample	*TACC* above median	*TACC* below median
POST×*TREAT*	0.026***	−0.004	0.038***
	(3.296)	(−0.307)	(3.438)
TREAT	0.004	0.018*	−0.010
	(0.518)	(1.661)	(−0.941)
E*×*POST*×*TREAT	**0.222*** **	**0.433*** **	**0.155*** **
	(7.606)	**(7.024)**	**(4.638)**
E×*TREAT*	−0.150***	−0.161***	−0.140***
	(−5.364)	(−2.729)	(−4.408)
E	0.456***	0.540***	0.437***
	(46.741)	(31.228)	(36.717)
Constant	−0.149*	−0.121	−0.185
	(−1.764)	(−0.994)	(−1.584)
Legal FE	YES	YES	YES
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Observations	117,369	58,525	58,844
Adjusted R^2	0.042	0.044	0.052
Test for the difference in the coefficients on *E*×*POST*×*TREAT* between Columns (2) and (3)			
Chi^2-statistic		3.99**	
(p-value)		(0.046)	

This table presents the results for OLS regressions that estimate the effect of M&A laws on the informativeness of earnings, where the dependent variable is the market-adjusted stock return (*RET*). Column (1) shows the effect of M&A laws on the informativeness of earnings for the full sample. Columns (2) and (3) present the results for subsamples partitioned by the median value of total accruals (*TACC*). The t-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

decisions in the post-law period. Given that accruals require higher-level verification than operating cash flows, the evidence is consistent with the view that investors' demand for external audit verification increases in the post-law period and, to a greater extent, for firms with higher accruals (Ball and Shivakumar 2008).[36]

Collectively, the evidence from both the debt covenant and earnings informativeness tests supports the view that outside financial statement users rely more on reported

[36] Untabulated results show that the positive effect of the enactment of M&A laws on the informativeness of accounting earnings is significantly larger in countries with higher auditor legal liability.

accounting numbers after the passage of M&A laws.[37] This greater reliance boosts their demand for high-quality audits (Ball and Shivakumar 2008; Baylis et al. 2017).

7 Further analyses

7.1 The effect of M&A laws on audit quality

In this subsection, we investigate the impact of M&A law enactment on the quality of audit services as a further consequence of heightened takeover pressure. Our preceding analyses indicate that both corporate insiders (managers and boards) and outsiders (creditors and investors) increase their demand for high-quality audits following the passage of M&A laws. To the extent that the enhanced demand induces auditors to provide better assurance services, one can expect that the enactment of M&A laws would lead to an increase in audit quality.

To test this expectation, we measure audit quality using the likelihood that auditors issue erroneous unqualified audit opinions. Specifically, we first run a logistic regression of the issuance of a qualified audit opinion (*QAO*) on its determinants and then estimate the predicted value of *QAO*. The logistic regression includes all explanatory variables used in Eq. (1), a Big 4 indicator (*BIG4*), the issuance of a qualified audit opinion in the previous year (*LQAO*), and firm age (*AGE*). Then we define an indicator variable *Erroneous_Opinion* that equals 1 for the client-years that fall above the 95th percentile of the predicted value of *QAO* but receive an unqualified opinion and 0 otherwise. *Erroneous_Opinion* captures potential audit failure in which an auditor issues a clean opinion for a client with high misstatement risk (i.e., type II error).[38]

Table 9 presents the results of our logistic regressions with *Erroneous_Opinion* as the dependent variable. We find that the coefficient on *POST*×*TREAT* is negative and significant in the full sample (Column (1)). Additionally, the corresponding coefficient is significantly more negative in countries with high auditor legal liability (Column (2)) than in those with low auditor legal liability (Column (3)). The results indicate that the enactment of M&A laws curtails the likelihood that auditors issue

[37] Given prior empirical evidence of the positive association between the valuation and incentive contracting roles of accounting measures in evaluating managerial performance (Banker et al. 2009), our results are consistent with the finding of Lel and Miller (2015) that the enactment of M&A laws increases the sensitivity of CEO turnover to accounting-based performance measures. Our results, along with those of Lel and Miller (2015), suggest that the enactment of M&A laws could increase the reliance on financial statement information for contracting.

[38] Our definition of *Erroneous_Opinion* is consistent with the definition of incorrect audit opinions for internal control weakness of Ge et al. (2017) and Cunningham et al. (2019). We focus on the type II error because auditor litigation arises mainly from the type II error (Ge et al. 2017). In addition, our sample includes no potential case of a type I error (i.e., the client-years that fall below the 95th percentile of the predicted value of *QAO* but receive a qualified opinion). We set the 95th percentile as a cutoff point because only 1.3 percent of our sample observations received a qualified audit opinion. We find similar results when we use the 97th percentile of the predicted value of *QAO* as a cutoff to define *Erroneous_Opinion*.

Table 9 The effect of M&A laws on audit quality

	(1)	(2)	(3)
Dependent =	*Erroneous_Opinion*	*Erroneous_Opinion*	*Erroneous_Opinion*
Sample =	Full sample	*AUDLIAB* above-median	*AUDLIAB* below-median
POST × TREAT	**−3.702*****	**−3.739*****	**−2.441*****
	(−20.121)	**(−17.827)**	**(−4.930)**
TREAT	3.076***	3.298***	1.808***
	(16.007)	(13.066)	(3.513)
SIZE	−0.611***	−0.554***	−0.760***
	(−18.264)	(−12.362)	(−13.901)
LEV	4.611***	4.201***	5.765***
	(18.620)	(12.788)	(13.936)
ROA	−9.924***	−9.090***	−11.119***
	(−19.344)	(−14.573)	(−11.042)
MB	−0.285***	−0.135*	−0.572***
	(−5.714)	(−1.712)	(−7.239)
BIG4	0.637***	0.421***	0.865***
	(9.075)	(4.213)	(7.644)
NGS	0.222***	0.204***	0.249***
	(11.849)	(7.725)	(8.811)
NBS	−0.042***	−0.024	−0.054**
	(−2.609)	(−1.031)	(−2.059)
INVREC	−0.832***	−0.762**	−0.438
	(−3.267)	(−2.178)	(−1.189)
ISSUE	0.164***	0.083	0.245**
	(2.657)	(0.976)	(2.514)
LOSS	1.525***	1.519***	1.728***
	(16.106)	(11.591)	(10.932)
CURR	0.006	−0.004	0.048
	(0.306)	(−0.132)	(1.367)
ATURN	−0.716***	−0.709***	−0.805***
	(−9.439)	(−7.124)	(−6.931)
CRLST	1.219***	0.942***	1.389***
	(10.594)	(4.601)	(8.743)
LQAO	2.670***	2.135***	3.296***
	(10.171)	(7.161)	(7.101)
AGE	0.078***	0.077***	0.099***
	(10.252)	(7.483)	(8.223)
GDP	−13.149***	−10.790***	−18.118***
	(−14.564)	(−7.913)	(−10.161)
REGQUAL	1.006***	0.834***	1.707***
	(8.185)	(5.160)	(6.754)
CH_FR	−0.418	−1.054	1.129
	(−0.660)	(−1.149)	(0.925)

Table 9 (continued)

	(1)	(2)	(3)
Dependent =	*Erroneous_Opinion*	*Erroneous_Opinion*	*Erroneous_Opinion*
Sample =	Full sample	*AUDLIAB* above-median	*AUDLIAB* below-median
CGRI	−0.453***	−0.756***	−0.161
	(−5.037)	(−6.068)	(−0.949)
ASD	−2.851***	−2.848***	−2.847***
	(−10.412)	(−8.951)	(−3.467)
ACCENF	−0.077***	−0.026	−0.115**
	(−4.291)	(−0.887)	(−2.060)
INF	0.011***	0.015*	0.005
	(3.119)	(1.647)	(0.976)
Constant	9.193***	8.178***	10.761***
	(14.460)	(9.183)	(8.954)
Legal FE	YES	YES	YES
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Observations	85,862	56,195	21,281
Pseudo R^2	0.680	0.703	0.657
Test for the difference in the coefficients on *POST*×*TREAT* between Columns (2) and (3)			
Chi^2-statistic		5.83**	
(p-value)		(0.016)	

This table presents the results for logistic regressions that estimate the effect of M&A laws on the issuance of erroneous audit opinions (*Erroneous_Opinion*). Column (1) shows the effect of M&A laws on *Erroneous_Opinion* for the full sample. Columns (2) and (3) present the results for subsamples partitioned by the country-level median of auditor legal liability (*AUDLIAB*). The z-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

unqualified audit opinions for clients with high misstatement risk, and the effect is more pronounced when auditors face higher litigation risk. This finding aligns with the view that the heightened takeover pressure induces auditors to improve their governance role beyond its impact on auditor selection.

7.2 The effect of M&A laws on audit fees

In this subsection, we test whether the passage of M&A laws affects the pricing of audit services and, if so, how. The results in the previous sections suggest that takeover pressure heightened by the enactment of M&A laws is likely to influence audit fees in two opposing ways. On one hand, increased takeover pressure disciplines self-serving managers and improves financial reporting (Khurana and Wang 2019; Balachandran et al. 2020), thereby reducing auditor litigation risk embedded in the pricing of audit services (i.e., supply-side effect). On the other hand, the passage

Table 10 The effect of M&A laws on audit fees

Panel A: Sample selection

Sample Refinement Procedures	Obs. Deleted	Obs. Remained
Firm-year observations in the Worldscope database for the period of 1992—2009 from countries that passed takeover laws during the period or countries that never passed takeover laws during the period or before		175,486
Drop observations from financial firms	(21,005)	154,481
Drop observations with missing values on audit fees	(122,494)	31,987
Drop observations with missing values on other required variables	(12,120)	19,867
Final sample for audit fee analyses		19,867

Panel B: Takeover law status across countries

Country	Observations	Enactment year	Country	Observations	Enactment year
China	2,235	N/A	Malaysia	4,891	1998
Denmark	1,072	N/A	New Zealand	622	2001
France	1,363	N/A	Norway	1,168	N/A
Greece	14	N/A	Pakistan	535	2000
India	1,851	1997	Poland	83	N/A
Ireland	729	1997	Portugal	124	N/A
Israel	187	N/A	Switzerland	760	2004
Japan	4,233	N/A			
			Total	19,867	

Panel C: The effect of M&A laws on audit fees

	(1)	(2)	(3)	(4)
Dependent =	*AUDFEE*	*AUDFEE*	*AUDFEE*	*AUDFEE*
Sample =	Full sample	Full sample (at least 1 obs. in both the pre- and post-law periods for each treatment firm)	Reduced sample	Reduced sample (at least 1 obs. in both the pre- and post-law periods for each treatment firm)
POST*×*TREAT	**−0.209*****	**−0.192*****	**−0.198*****	**−0.132*****
	(−4.226)	**(−3.929)**	**(−4.182)**	**(−3.007)**
TREAT	−0.150**	−0.110	−0.050	−0.150
	(−2.076)	(−1.290)	(−0.649)	(−1.560)
Control variables	YES	YES	YES	YES
Legal FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

Table 10 (continued)

Industry FE	YES	YES	YES	YES
Observations	19,867	13,433	13,016	7,945
Adjusted R^2	0.788	0.753	0.782	0.754

This table presents the sample distribution and empirical results for audit fee analyses. Panel A shows the sample refinement procedures. Panel B presents the number of observations and the takeover law status for each country. Panel C presents the results for OLS regressions that estimate the effect of M&A laws on audit fees. Column (1) shows the results for the full sample from 1992 to 2009. The sample period begins five years before the first enactment year of treatment countries (i.e., 1997 in India and Ireland) and ends five years after the last enactment year (i.e., 2004 in Switzerland) in the audit fee sample. Column (2) presents the results for the constant sample that requires at least one observation in both the pre- and post-law periods for each treatment firm. It includes all observations from control countries over the period of 1992 to 2009. Column (3) shows the results for the reduced sample from 1994 to 2007, which begins three years before the first enactment year of treatment countries and ends three years after the last enactment year. Column (4) presents the results for the constant sample that requires at least one observation in both the pre- and post-law periods for each treatment firm over the period of 1994 to 2007. It includes all observations from control countries over the reduced sample period. The t-statistics in parentheses are adjusted for heteroscedasticity and clustering by firm. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively (two tailed). See the Appendix Table 11 for variable definitions

of M&A laws can increase financial reporting quality and thus boost the demand for external audit verification; specifically, the improved reporting quality induces the board of directors, creditors, investors, and other stakeholders to rely more on accounting information when making their contracting and valuation decisions. This in turn increases auditor litigation risk and thus audit fees (i.e., demand-side effect). Given the two countervailing effects, the (net) effect of M&A law enactment on audit fees depends on which effect dominates.

We test this by estimating an ordinary least squares (OLS) regression (Simunic 1980; Choi et al. 2008; Kim et al. 2012).

$$\begin{aligned} AUDFEE_{ijt} = {} & \beta_0 + \beta_1 POST_{jt} \times TREAT_j + \beta_2 TREAT_j + \beta_3 SIZE_{ijt} + \beta_4 LEV_{ijt} + \beta_5 ROA_{ijt} \\ & + \beta_6 MB_{ijt} + \beta_7 BIG4_{ijt} + \beta_8 NGS_{ijt} + \beta_9 NBS_{ijt} + \beta_{10} INVREC_{ijt} + \beta_{11} ISSUE_{ijt} \\ & + \beta_{12} LOSS_{ijt} + \beta_{13} CURR_{ijt} + \beta_{14} ATURN_{ijt} + \beta_{15} CRLST_{ijt} \\ & + \beta_{16} GDP_{jt} + \beta_{17} REGQUAL_{jt} + \beta_{18} CH\_FR_{jt} + \beta_{19} CGRI_{jt} + \beta_{20} ASD_j \\ & + \beta_{21} ACCENF_{jt} + \beta_{22} INF_{jt} + Legal\ \&\ Year\ \&\ Industry\ Fixed\ Effects + \varepsilon_{ijt}, \end{aligned} \tag{4}$$

where, for firm i in country j in year t, the dependent variable *AUDFEE* is measured by the natural logarithm of audit fees in US dollars.[39] This regression equation includes all explanatory variables in Eq. (1) and a Big 4 auditor indicator (*BIG4*) as

[39] We translate audit fees in local currency to US dollars using average exchange rates for the fiscal year. We do not adjust inflation rates for the measurement of *AUDFEE* because foreign exchange rates already reflect different inflation rates across countries. To eliminate any residual influence of inflation on audit fees, we control for the inflation rate measured by the percentage change in average consumer prices of each country-year (*INF*). Our results are also robust to using inflation-adjusted audit fees as the dependent variable.

an additional control variable. We expect the coefficient on $POST \times TREAT$ (i.e., β_1) to be negative (positive) if the supply-side (demand-side) effect dominates.

Panels A and B of Table 10 present the selection process and the distribution of the audit-fee sample by country, respectively. The number of sample countries is reduced to 15 (six treatment countries and nine control countries) because few firms in other countries disclose audit fees. The sample period starts from 1992, which is five years before the earliest M&A law enactment in the audit-fee sample (i.e., India and Ireland enacted M&A laws in 1997), and ends in 2009, which is five years after the last M&A law enactment in the audit-fee sample (i.e., Switzerland enacted M&A laws in 2004).

Panel C of Table 10 presents the regression results for the effects of M&A law enactment on audit fees. Column (1) shows that the coefficient on $POST \times TREAT$ is negative and significant (-0.209, t-statistic $= -4.226$). Because the average audit fees exhibit an increasing trend in both treatment and control countries during our sample period (in untabulated analyses), this result indicates that audit fees increase significantly *less* in treatment countries after the passage of M&A laws, compared to the corresponding increase in audit fees in control countries.[40] We obtain consistent results in Columns (2) to (4), where we require at least one observation in both the pre- and post-law periods for each treatment firm, use a shortened sample period, 1994–2007, or both. Collectively, the results in Panel C show that the enactment of M&A laws is associated with a smaller increase in audit fees, suggesting that the disciplinary effect of takeover pressure on mitigating auditor litigation risk (i.e., supply-side effect) dominates its effect on increasing auditor litigation risk through the increased demand for external audit verification (i.e., demand-side effect).[41]

8 Conclusion

The market for corporate control mitigates agency problems by disciplining the management and the board. Exploiting the staggered enactments of M&A laws as a natural experiment, we find that firms are more likely to appoint Big 4 auditors in response to enhanced takeover pressure. We also find that the positive effect of

[40] The coefficient on $POST \times TREAT$ in Panel C of Table 10 captures the *incremental* effect of M&A law enactment on audit fees. Its negative coefficient indicates a smaller increase in audit fees rather than a decrease in audit fees because the average audit fees in treatment countries increase both in the pre- and post-law periods. Thus the enactment of M&A laws reduces the growth rate of audit fees (not the level of audit fees) in treatment countries, compared to the growth rate in control countries.

[41] Untabulated results show that the negative effect of the enactment of M&A laws on audit fees is significantly larger in countries with higher auditor legal liability. This evidence is consistent with the view that the increased takeover pressure disciplines managers and improves pre-audited reporting quality, which in turn reduces auditor litigation risk and allows auditors to charge relatively low audit fees.

takeover pressure on the appointment of Big 4 auditors is more pronounced in countries that experience more and larger takeover transactions. Our channel analyses reveal that the impact of M&A laws on auditor selection runs through managerial commitment and board monitoring channels.

Next we find that the enactment of M&A laws leads creditors and investors to rely more on accounting information for their contracting and valuation decisions. This evidence is consistent with the greater demand for high-quality audit verification in the presence of heightened takeover pressure (Ball and Shivakumar 2008; Baylis et al. 2017). In line with the increased demand for audit verification, we also find that the external governance from takeover markets improves audit quality. Finally, we find that audit fees increase less steeply after the passage of M&A laws than before, suggesting that an effective market for corporate control improves auditor governance without substantial increases in audit fees.

Our paper is among the very few, if not the first, to study the market for corporate control from an auditing perspective. Our results provide novel evidence on the significant effect of external governance from active takeover markets on auditor selection, audit quality, and audit fees. However, these findings should be interpreted cautiously because our analyses are subject to caveats. First, we cannot rule out the possibility that our sample countries could have endogenously passed M&A laws after weighing the pros and cons of the laws. Second, although we perform a battery of robustness tests, our results might be influenced by country-level, time-varying omitted variables. Third, although we show that the effect of takeover pressure on auditor selection runs through managerial commitment and board monitoring channels, our evidence is far from conclusive, due to limitations on our measurement of channel variables. Future research may further explore the channels through which takeover threats affect audit variables.

Appendix

Table 11 Variable Definition

Variables	Definition
Variables used in the auditor selection analysis	
BIG4	An indicator variable that equals 1 when the client is audited by one of the Big 4 (5, 6, or 8) auditors and 0 otherwise. We use Capital IQ as a primary data source for auditor identification and supplement the data by Compustat Global for the pre-2004 period and Worldscope for the remaining period
POST	An indicator variable that equals 1 for observations in the post-M&A law period (including the enactment year of takeover laws) and 0 otherwise. *POST* is coded as 0 for all observations from countries that never passed takeover laws before or during the sample period
TREAT	An indicator variable that equals 1 for countries that enacted takeover laws during the sample period and 0 otherwise
SIZE	The natural logarithm of total assets in U.S dollars
LEV	The ratio of total liabilities to total assets
ROA	The return on assets, calculated as earnings before interest and taxes divided by total assets at the beginning of the year
MB	The ratio of the market value of equity to the book value of equity
NGS	The number of geographic segments
NBS	The number of business segments
INVREC	The sum of inventory and receivables divided by total assets
ISSUE	An indicator variable that equals 1 when the client has issued long-term debt or new equity shares with a total amount exceeding 5 percent of beginning-of-year total assets and 0 otherwise
LOSS	An indicator variable that equals 1 if the client reports a net loss in the year and 0 otherwise
CURR	The ratio of current assets to current liabilities
ATURN	The ratio of sales revenue to total assets
CRLST	An indicator variable that equals 1 if the client has an American Depositary Receipt and 0 otherwise
GDP	The natural logarithm of gross domestic product (GDP) per capita in ten thousand US dollars (Source: International Monetary Fund, World Economic Outlook)
REGQUAL	The perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (Kaufmann et al. 2009) (Source: The World Bank Group, Worldwide Governance Indicators)
CH_FR	A change in financial reform index, which is a broad measure of the multi-dimensional nature of financial reforms. We assume that the value of missing years is the same as the value of closest nonmissing years. A higher value represents a greater degree of financial liberalization (Abiad et al. 2010)
CGRI	An indicator variable that equals 1 if the country first passed a corporate-governance reform in the year or before and 0 otherwise (Fauver et al. 2017)
ASD	The strength of minority shareholder protection against expropriation by corporate insiders (Djankov et al. 2008)

Table 11 (continued)

Variables	Definition
ACCENF	The strength of enforcement actions by independent regulatory bodies that require companies to revise and reissue financial statements (Brown et al. 2014)
INF	The percentage change in average consumer prices (Source: International Monetary Fund, World Economic Outlook)
Variables used in the cross-sectional analysis	
NDEALS	The number of M&A deals divided by the total number of public firms in the previous year at the country level. M&A deals include deals with a public acquirer, a public target, and a deal amount above 1 million US dollars
$DEALS	The total amount of M&A deals divided by the total market capitalization of public firms in the previous year at the country level. M&A deals include deals with a public acquirer, a public target, and a deal amount above 1 million US dollars
Variables used in the channel analysis	
LNBS	The number of business segments in the previous year
ΔLev	Changes in leverage ratio, where the leverage ratio is defined as total liabilities divided by total assets
$\Delta Investment$	Changes in investment, where investment is defined as capital expenditures divided by beginning-of-period property, plant, and equipment
ANTIDIR	The strength of minority shareholder protection against corporate decision-making. It is defined as the aggregation of the following six indexes: (1) vote by mail, (2) shares not deposited, (3) cumulative voting, (4) oppressed minority, (5) pre-emptive rights, and (6) lower capital requirement to call a meeting (Djankov et al. 2008)
AUDLIAB	The extent of the procedural difficulty in recovering losses due to misleading audited financial statements from public accountants in civil liability cases. A higher value indicates greater legal liability on external auditors (La Porta et al. 2006)
Variables used in the debt covenant analysis	
ACOV	An indicator variable that equals 1 for a debt contract containing at least one accounting-based covenant and 0 otherwise
NACOV	An indicator variable that equals 1 for a debt contract containing at least one non-accounting-based covenant and 0 otherwise
PPE	Property, plant, and equipment scaled by total assets
DB_AMT	The natural logarithm of debt amount, where the debt amount is measured in US million dollars
DB_MATU	The natural logarithm of debt maturity, where the debt maturity is measured as the number of months
Variables used in the analysis for the price informativeness of earnings	
RET	A firm's stock return minus a value-weighted market return over the fiscal year
E	Earnings per share scaled by a beginning-of-year share price
TACC	Total accruals per share scaled by a beginning-of-year share price, where total accruals are defined as earnings minus cash flows from operating activities

Table 11 (continued)

Variables	Definition
Variables used in the analysis for audit quality	
QAO	An indicator variable that equals 1 for a client which receives a qualified audit opinion in the current year and 0 otherwise
LQAO	An indicator variable that equals 1 for a client which receives a qualified audit opinion in the previous year and 0 otherwise
AGE	The number of years since a firm first appeared in the Worldscope database
Erroneous_Opinion	An indicator variable that equals 1 for a client-year that falls above the 95th percentile of the predicted value of *QAO* but receives an unqualified opinion and 0 otherwise
Variables used in the audit fee analysis	
AUDFEE	The natural logarithm of audit fees in US dollars

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Data availability Data are available from the public sources identified in the text.

References

Abiad, A., E. Detragiache, and T. Tressel. 2010. A new database of financial reforms. *IMF Staff Papers* 57 (2): 281–302.

Baber, W.R., S.H. Kang, L. Liang, and Z. Zhu. 2015. External corporate governance and misreporting. *Contemporary Accounting Research* 32 (4): 1413–1442.

Baker, A., D.F. Larcker, and C.C.Y. Wang. 2022. How much should we trust staggered difference-in-differences estimates? *Journal of Financial Economics* 144 (2): 370–395.

Balachandran, B., H.N. Duong, H. Luong, and L. Nguyen. 2020. Does takeover activity affect stock price crash risk? Evidence from international M&A laws. *Journal of Corporate Finance* 64: Article 101697.

Ball, R., and L. Shivakumar. 2008. Earnings quality at initial public offerings. *Journal of Accounting and Economics* 45 (2–3): 324–349.

Ball, R., X. Li, and L. Shivakumar. 2015. Contractibility and transparency of financial statement information prepared under IFRS: Evidence from debt contracts around IFRS adoption. *Journal of Accounting Research* 53 (5): 915–963.

Banker, R.D., R. Huang, and R. Natarajan. 2009. Incentive contracting and value relevance of earnings and cash flows. *Journal of Accounting Research* 47 (3): 647–678.

Baylis, R.M., P. Burnap, M.A. Clatworthy, M.A. Gad, and C.K.M. Pong. 2017. Private lenders' demand for audit. *Journal of Accounting & Economics* 64 (1): 78–97.

Beasley, M.S., and K.R. Petroni. 2001. Board independence and audit-firm type. *Auditing: A Journal of Practice & Theory* 20 (1): 97–114.

Bedard, J., and K. Johnstone. 2004. Earnings manipulation risk, corporate governance risk, and auditors' planning and pricing decisions. *The Accounting Review* 79 (2): 277–304.

Berger, P.G., and R. Hann. 2003. The impact of SFAS No. 131 on information and monitoring. *Journal of Accounting Research* 41 (2): 163–223.

Berger, P.G., E. Ofek, and D.L. Yermack. 1997. Managerial entrenchment and capital structure decisions. *Journal of Finance* 52 (4): 1411–1438.

Bertrand, M., and S. Mullainathan. 2003. Enjoying the quiet life? Corporate governance and managerial preferences. *Journal of Political Economy* 111 (5): 1043–1075.

Bittlingmayer, G. 1998. The market for corporate control (including takeovers). In *Encyclopedia of Law and Economics*, Vol III. – *The Regulation of Contracts*, edited by B. Bouckaert and G. de Geest, 725–771, Edward Elgar.

Brealey, R., and S. Myers. 2000. *Principles of Corporate Finance*, 6th ed. New York: McGraw Hill.

Brown, P., J. Preiato, and A. Tarca. 2014. Measuring country differences in enforcement of accounting standards: An audit and enforcement proxy. *Journal of Business Finance and Accounting* 41 (1–2): 1–52.

Bushman, R.M., and A.J. Smith. 2001. Financial accounting information and corporate governance. *Journal of Accounting and Economics* 32 (1–3): 237–333.

Callaway, B., and P.H. Sant'Anna. 2021. Difference-in-differences with multiple time periods. *Journal of Econometrics* 225 (2): 200–230.

Callen, J., Y. Guan, and J. Qiu. 2014. The market for corporate control and accounting conservatism. Working paper. University of Toronto.

Cannon, J.N., B. Hu, J.J. Lee, and D. Yang. 2020. The effect of international takeover laws on corporate resource adjustments: Market discipline and/or managerial myopia? *Journal of International Business Studies* 51 (9): 1443–1477.

Carcello, J.V., D.R. Hermanson, T.L. Neal, and R. Riley Jr. 2002. Board characteristics and audit fees. *Contemporary Accounting Research* 19 (3): 365–384.

Carcello, J.V., C.W. Hollingsworth, and T.L. Neal. 2006. Audit committee financial experts: A closer examination using firm designations. *Accounting Horizons* 20 (4): 351–373.

Carcello, J.V., D.R. Hermanson, and Z. Ye. 2011. Corporate governance research in accounting and auditing: Insights, practice implications, and future research directions. *Auditing: A Journal of Practice & Theory* 30 (3): 1–31.

Chaney, P.K., D. Jeter, and L. Shivakumar. 2004. Self-selection of auditors and audit pricing in private firms. *The Accounting Review* 79 (1): 51–72.

Chava, S., and M.R. Roberts. 2008. How does financing impact investment? The role of debt covenants. *Journal of Finance* 63 (5): 2085–2121.

Chen, K.Y., and J. Zhou. 2007. Audit committee, board characteristics, and auditor switch decisions by Andersen's clients. *Contemporary Accounting Research* 24 (4): 1085–1117.

Choi, J.H., and T.J. Wong. 2007. Auditors' governance functions and legal environments: An international investigation. *Contemporary Accounting Research* 24 (1): 13–46.

Choi, J.-H., J.-B. Kim, X. Liu, and D.A. Simunic. 2008. Audit pricing, legal liability regimes, and Big 4 premiums: Theory and cross-country evidence. *Contemporary Accounting Research* 25 (1): 1–49.

Coles, J., and C. Hoi. 2003. New evidence on the market for directors: Board membership and Pennsylvania Senate Bill 1310. *Journal of Finance* 58 (1): 197–230.

Cunningham, L.M., C. Li, S.E. Stein, and N.S. Wright. 2019. What's in a name? Initial evidence of U.S. audit partner identification using difference-in-differences analyses. *The Accounting Review* 94 (5): 139–163.

Datar, S.M., G.A. Feltham, and J.S. Hughes. 1991. The role of audits and audit quality in valuing new issues. *Journal of Accounting and Economics* 14 (1): 3–49.

DeAngelo, L. 1981. Auditor size and audit quality. *Journal of Accounting and Economics* 3 (3): 183–199.

DeAngelo, L. 1988. Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting and Economics* 10 (1): 3–36.

DeFond, M., and J. Francis. 2005. Audit research after Sarbanes-Oxley. *Auditing: A Journal of Practice & Theory* 24 (s-1): 5–30.

DeFond, M., and J. Zhang. 2014. A review of archival auditing research. *Journal of Accounting and Economics* 58 (2–3): 275–326.

Denis, D.J., and D.K. Denis. 1993. Managerial discretion, organizational structure, and corporate performance: A study of leveraged recapitalizations. *Journal of Accounting and Economics* 16 (1–3): 209–236.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer. 2008. The law and economics of self-dealing. *Journal of Financial Economics* 88 (3): 430–465.

Fama, E., and M. Jensen. 1983. Separation of ownership and control. *Journal of Law and Economics* 26 (2): 301–325.

Fan, J.P., and T.J. Wong. 2005. Do external auditors perform a corporate governance role in emerging markets? Evidence from East Asia. *Journal of Accounting Research* 43 (1): 35–72.

Fauver, L., M. Hung, X. Li, and A.G. Taboada. 2017. Board reforms and firm value: Worldwide evidence. *Journal of Financial Economics* 125 (1): 120–142.

Francis, J.R., and E.R. Wilson. 1988. Auditor changes: A joint test of theories relating to agency costs and auditor differentiation. *The Accounting Review* 63 (4): 663–682.

Francis, J.R., and D. Wang. 2008. The joint effect of investor protection and Big 4 audits on earnings quality around the world. *Contemporary Accounting Research* 25 (1): 157–191.

Francis, J., P. Michas, and S. Seavey. 2013. Does audit market concentration harm the quality of audited earnings? Evidence from audit markets in 42 countries. *Contemporary Accounting Research* 30 (1): 325–355.

Ge, W., A. Koester, and S. McVay. 2017. Benefits and costs of Sarbanes-Oxley Section 404(b) exemption: Evidence from small firms' internal control disclosures. *Journal of Accounting and Economics* 63 (2–3): 358–384.

Gilson, S.C. 1990. Bankruptcy, boards, banks, and blockholders: Evidence on changes in corporate ownership and control when firms default. *Journal of Financial Economics* 27 (2): 355–387.

Glendening, M., I. Khurana, and W. Wang. 2016. The market for corporate control and dividend policies: Cross-country evidence from M&A laws. *Journal of International Business Studies* 47 (9): 1106–1134.

Gompers, P., J. Ishii, and A. Metrick. 2003. Corporate governance and equity prices. *Quarterly Journal of Economics* 118 (1): 107–155.

Gotti, G., S. Han, J.L. Higgs, and T. Kang. 2012. Managerial stock ownership, analyst coverage, and audit fee. *Journal of Accounting, Auditing & Finance* 27 (3): 412–437.

Greene, W.H. 2012. *Econometric Analysis*, 7th ed. Upper Saddle River, NJ: Prentice Hall.

Grossman, S., and O. Hart. 1980. Disclosure laws and takeover bids. *Journal of Finance* 35 (2): 323–334.

Guedhami, O., J.A. Pittman, and W. Saffar. 2014. Auditor choice in politically connected firms. *Journal of Accounting Research* 52 (1): 107–162.

Hadlock, C., and G. Lumer. 1997. Compensation, turnover, and top management incentives: Historical evidence. *Journal of Business* 70 (2): 153–188.

Healy, P.M., and K.G. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31 (1): 405–440.

Hirshleifer, D., and A. Thakor. 1998. Corporate control through board dismissals and takeovers. *Journal of Economics and Management Strategy* 7 (4): 489–520.

Hope, O., D. Hu, and W. Zhao. 2017. Third-party consequences of short-selling threats: The case of auditor behavior. *Journal of Accounting and Economics* 63 (2–3): 479–498.

Jayaraman, S., and L. Shivakumar. 2013. Agency-based demand for conservatism: Evidence from state adoption of antitakeover laws. *Review of Accounting Studies* 18 (1): 95–134.

Jensen, M. 1988. Takeovers: Their causes and consequences. *Journal of Economic Perspectives* 2 (1): 21–48.

Jensen, M.C., and R.S. Ruback. 1983. The market for corporate control: The scientific evidence. *Journal of Financial Economics* 11 (1–4): 5–50.

Jensen, M.C., W.H. Meckling, and W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4): 305–360.

Jiang, J., I.Y. Wang, and K.P. Wang. 2019. Big N auditors and audit quality: New evidence from quasi-experiments. *The Accounting Review* 94 (1): 205–227.

Kaufmann, D., A. Kraay, and M. Mastruzzi. 2009. *Governance Matters VIII: Governance Indicators for 1996–2008*. Washington, D.C.: World Bank Policy Research.

Khurana, I., and K.K. Raman. 2004. Litigation risk and the financial reporting credibility of Big 4 versus non-Big 4 audits: Evidence from Anglo-American countries. *The Accounting Review* 79 (2): 473–495.

Khurana, I., and W. Wang. 2019. International merger and acquisitions laws, the market for corporate control, and accounting conservatism. *Journal of Accounting Research* 57 (1): 241–290.

Kim, J.-B., X. Liu, and L. Zheng. 2012. The impact of mandatory IFRS adoption on audit fees: Theory and evidence. *The Accounting Review* 87 (6): 2061–2094.

Kim, J.-B., B. Li, and Z. Liu. 2019a. Information processing costs and breadth of ownership. *Contemporary Accounting Research* 36 (4): 2408–2436.

Kim, J.-B., M. Pevzner, and X. Xin. 2019b. Foreign institutional ownership and auditor choice: Evidence from worldwide institutional ownership. *Journal of International Business Studies* 50 (1): 83–110.

Kini, O., W. Kracaw, and S. Mian. 2004. The nature of discipline by corporate takeovers. *Journal of Finance* 59 (4): 1511–1552.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer, and R. Vishny. 1997. Legal determinants of external finance. *Journal of Finance* 52 (3): 1131–1150.

La Porta, R., F. Lopez-de-Silanes, and A. Shleifer. 2006. What Works in Securities Laws? *Journal of Finance* 61 (1): 1–32.

Lawrence, A., M. Minutti-Meza, and P. Zhang. 2011. Can Big 4 versus non-Big 4 differences in audit-quality proxies be attributed to client characteristics? *The Accounting Review* 86 (1): 259–286.

Lee, H.Y., V. Mande, and R. Ortman. 2004. The effect of audit committee and board of director independence on auditor resignation. *Auditing: A Journal of Practice & Theory* 23 (2): 131–146.

Lel, U., and D.P. Miller. 2015. Does takeover activity cause managerial discipline? Evidence from international M&A laws. *Review of Financial Studies* 28 (6): 1588–1622.

Lennox, C., and J. Pittman. 2010. Big Five audits and accounting fraud. *Contemporary Accounting Research* 27: 209–247.

Manne, H.G. 1965. Mergers and the market for corporate control. *Journal of Political Economy* 73 (2): 110–120.

Marquardt, C., and E. Zur. 2015. The role of accounting quality in the M&A market. *Management Science* 61 (3): 604–623.

Martin, K., and J. McConnell. 1991. Corporate performance, corporate takeovers, and management turnovers. *Journal of Finance* 46 (2): 671–688.

McGurn, P.S. 2002. Classification cancels corporate accountability. *Stanford Law Review* 55 (3): 839–844.

McNichols, M.F., and S.R. Stubben. 2015. The effect of target-firm accounting quality on valuation in acquisitions. *Review of Accounting Studies* 20 (1): 110–140.

Mikkelson, W., and M. Partch. 1997. The decline of takeovers and disciplinary managerial turnover. *Journal of Financial Economics* 44 (2): 205–228.

Nenova, T. 2006. Takeover laws and financial development. Working Paper No. 4029. World Bank Policy Research.

Raman, K., L. Shivakumar, and A. Tamayo. 2013. Target's earnings quality and bidders' takeover decisions. *Review of Accounting Studies* 18 (4): 1050–1087.

Safieddine, A., and S. Titman. 1999. Leverage and corporate performance: Evidence from unsuccessful takeovers. *Journal of Finance* 54 (2): 547–580.

Scharfstein, D. 1988. The disciplinary role of takeovers. *Review of Economic Studies* 55 (2): 185–199.

Servaes, H., and A. Tamayo. 2014. How do industry peers respond to control threats? *Management Science* 60 (2): 380–399.

Simunic, D.A. 1980. The Pricing of Audit Services: Theory and Evidence. *Journal of Accounting Research* 18 (1): 161–190.

Wang, Y., and A.C. Chui. 2015. Product market competition and audit fees. *Auditing: A Journal of Practice & Theory* 34 (4): 139–156.

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