

Perceived audit quality and firm value: Evidence from investors' reaction to the revelation of limiting liability agreements in audit engagement letters

Henock Louis, *Penn State University*
Dahlia Robinson, *University of South Florida*
Amy X. Sun, *University of Houston*

Abstract

We examine the value changes in U.S. investors' actual *perceptions of audit quality* by analyzing the market reaction to the first public revelation of liability limiting agreements (LLAs) in audit engagement letters of publicly traded firms. The revelation of the existence of liability limiting agreement (LLA) clauses in audit engagement letters of publicly traded companies results in substantial losses in their values and lower shareholders' approval of their auditors. Consistent with investors' reaction to the revelation being associated with concerns about audit quality, the loss in value is strongly related to clients' incentives and opportunity to misreport. Specifically, the loss is more pronounced when a firm's earnings quality is low, the firm's recent reported earnings barely meet the average analyst earnings forecast, the firm has recently issued stocks, and the managers have recently sold stocks on their own accounts. The loss is also attenuated when outsiders constitute a super-majority of the firm's board of directors. Overall, the evidence suggests that investors attribute a substantial premium to external audits and that investors' negative *perception* of audit quality significantly increases issuers' cost of capital and, consequently, adversely affects firm value.

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Accounting and auditing professionals serve an absolutely vital role in our capital markets. Transparent, informative, and accurate financial reporting are the lifeblood of the capital markets and are essential for investors to make informed decisions as to how to allocate their capital. Without accurate and reliable corporate disclosures and financial statements -- and competent auditors to audit them -- our competitive free market system could not function properly. Steven Harris – member of the Public Company Accounting Oversight Board (PCAOB).¹

1. Introduction

External audits are presumably indispensable for a well-functioning capital market, with the cost of capital being prohibitively large for many firms without independent attestations of the credibility of the financial reports. However, in spite of the strong presumption about the importance of auditing, extant academic studies provide no conclusive evidence on the value of improved audit quality,² leading Healy and Palepu (2001, p. 415) to conclude that there is “a paucity of evidence on the value of auditor opinions to investors.” More recently, Donovan et al. (2014) also question the value of audit quality in the U.S., observing that there is little evidence of concerns about variations in audit quality among equity investors in the U.S.

Assessing the impacts of cross-sectional variations in audit quality in the U.S. is difficult because auditing is mandatory for every publicly traded firm and cross-sectional variations in audit quality is largely unobservable (Lawrence et al. 2011). Moreover, an argument has been made that variations in external financial reporting quality (EFRQ) in the U.S. have little impact on firm value. Zimmerman (2013, p. 888) asserts, for instance, that “EFRQ has on average at best a second-order effect on firm value of US publicly listed companies and improvements in these firms’ EFRQ have a third-order effect on firm value.” Donovan et al. (2014) note that Zimmerman’s (2013) doubt about the benefits of changes in reporting quality in the U.S. also applies to changes in audit quality. More recently, Jiang, Wang, and Wang (2019 p. 205) document improvements in some audit quality proxies following the acquisition of a non-Big N auditor by a Big N auditor and conclude that the capital markets apparently do not “attach any premium to the improved audit quality”

¹http://pcaobus.org/News/Speech/Pages/03202014_American.aspx.

²See, e.g., Dodd et al. (1984), Dodd et al. (1986), Dopuch et al. (1987), Nichols and Smith (1983), Johnson and Lys (1990), and Klock (1994).

based on the merger announcement abnormal returns. However, investors could simply fail to anticipate the non-Big N auditor acquisition effect. Therefore, whether changes in U.S. investors' perception of audit quality substantially affect firm value remains an important empirical question. Our study contributes to the understanding of the value of changes in U.S. investors' actual *perceptions of audit quality* by analyzing the market reaction to the first public revelation of liability limiting agreements (LLA) in audit engagement letters of publicly traded firms.

To curb their litigation costs and the risk of the failure of another auditing firm, auditors have been lobbying for regulations limiting their liability, but to no avail (Johnson 2007; Dickey 2008). The Federal Financial Institutions Examination Council (FFIEC) opposes LLA, arguing: "Limits on external auditors' liability may weaken the external auditors' objectivity, impartiality, and performance and, thus, reduce the Agencies' ability to rely on audits."³ The FFIEC opposes *any* alternative dispute resolution clause and *any* limitation of liability provision in audit engagement letters, even if the limitation applies only to the clients' rights.⁴ The Securities and Exchange Commission (SEC) also maintains that any move to indemnify auditors against liability would violate auditor independence (SEC 2003).

As U.S. regulators were resisting auditors' efforts to limit their liability, LLA clauses were becoming a standard feature of audit engagement letters, while remaining unknown to investors (Rapoport 2005). However, on September 20, 2005, Sun Microsystems disclosed in a DEF 14A filing: "In connection with the audit of the 2005 financial statements, Sun entered into an engagement agreement with Ernst & Young ... That agreement is subject to alternative dispute resolution procedures and an exclusion of punitive damages." This statement was followed on November 28, 2005 by a Wall Street Journal (WSJ) article discussing the issue and the major audit firms' involvement. We use the context of the LLA clause disclosure and the WSJ article to analyze the effect of U.S. investors' *perception of audit quality* on firm value.

³<http://www.ffiec.gov/press/proposedinteragencyadvisory.pdf>

⁴Major lawsuits by clients against auditors include suits by Cendant and HealthSouth against EY, Adelphia and Navistar against Deloitte, AMERCO against PwC, and Fannie Mae against KPMG. We provide more details on these cases in the next section.

Although Louis et al. (2019) find that LLA clauses are associated with a reduction in audit fees, they find no evidence that they negatively affect reporting quality. However, ultimately, investors' reaction to the LLA disclosure is likely to be determined not by the actual effects of the clauses but by investors' perception of their potential effects. U.S. regulators are actually quite concerned about the perception that a LLA clause could convey about auditor independence. The SEC argues that, if a "reasonable investor believes such a provision causes a conflict of interest, then it impairs independence" (Rapoport 2005). The PCAOB also opines that limiting auditor liability could "undermine investor confidence in the auditor's objectivity and the quality of companies' financial reports" (PCAOB 2006). The position of the regulators is consistent with extant analytical studies that suggest that a reduction in an auditor's total litigation cost would reduce its incentives to provide high quality audits (Dye 1993; Dye 1995; and Chan and Pae 1998).

As Lennox and Li (2012, p. 155) note, there is "a widespread belief that unlimited liability is important for incentivizing auditors to provide high quality audits." Accordingly, institutional investors' reaction to the LLA disclosure was very negative. The Council of Institutional Investors maintains, for instance, that LLAs could impair auditor independence and "potentially place U.S. companies, shareholders, and capital markets at risk" (Mahoney 2006). Cynthia Richson, the Ohio Public Employees Retirement System's governance officer, also argues that LLAs are a "disservice to investors" (Rapoport 2005). As a direct evidence of shareholders' opposition to LLAs, Sun's revelation of its LLA led shareholders to vote against retaining EY as Sun's auditor (Reilly 2006). The approval rate of EY by Sun's shareholders fell from 83.3% in the year prior to the disclosure to 73.2% about one month after the disclosure, which constitutes an enormous decline, considering that auditor reappointment is a routine matter and that the approval rate is generally quite sticky. Gregory Smith, director of operations for the Investment Company Institute (ICI), also suggested that shareholders would incorporate LLA clause information in their deliberation on auditor selection (Smith 2006). Accordingly, we find a significant reduction in shareholders' approval of their auditors in the year after the WSJ publication. Hence, the context

of the LLA disclosure and the WSJ article provides an excellent and unique setting to analyze the effect of investors' *perception* of audit quality on firm value.

Because the LLA clauses limit only clients' rights and do not preclude investors from suing auditors, one might argue that the LLA clauses do not matter and would not be of much concern to shareholders, notwithstanding the regulators' claim. However, it appears that the audit firms would not have included the clauses in the contracts unless they believe that the clauses provide them some benefits.⁵ Moreover, because investors' alleged losses from impaired audit quality generally far exceed the amount that they recover,⁶ investors might want to avoid any action that could increase the perception that audit quality is impaired. Furthermore, limitations on a client's rights to sue also restrict investors' rights to sue. Because of the restrictions imposed by the Private Securities Litigation Reform Act (PSLRA) of 1995 and the Securities Litigation Uniform Standards Act (SLUSA) of 1998 on shareholders' ability to successfully file class-action lawsuits, client litigation now comprises one of the major sources of auditor concerns. Shareholders can bypass the requirements of the PSLRA and the SLUSA by filing derivative lawsuits, where "the rights of the plaintiff shareholders derive from the primary corporate right to redress the wrongs against it" (*Desaigoudar v. Meyercord*, 108 Cal.App.4th 173, 183 (2003)).

Because audit engagement letters are not publicly disclosed, the LLA clauses were largely unknown to investors and, hence, their potential information content was not impounded into price. The WSJ notes that "these liability-limiting provisions never had been disclosed before with regard to individual companies, and so some investors were surprised and dismayed" by the disclosure (Rapoport 2005). We perform an extensive search and do not find any evidence of a similar disclosure prior to September 20, 2005. The WSJ also notes that "[i]nvestors generally have been

⁵Partners from a Big 4 audit firm indicate, in private conversations, that their legal counsels strongly encourage them to include the clauses in their audit engagement letters and that the LLAs have been effective in reducing their litigation costs.

⁶For instance, a U.S. Chamber of Commerce report concludes that securities class action lawsuits result in a recovery of \$5 billion, while costing investors nearly \$39 billion per year. The report finds that the simple filing of a suit erases about 4.4% of market value (U.S. Chamber 2014).

unaware of the provisions because they are contained in audit-engagement letters” (Reilly 2006).⁷ Hence, the market reaction to the first LLA disclosure could be informative about the effect of *perceived* audit quality on firm value.

We observe a substantial decrease in the market value of Sun Microsystems (-2.42%) after the LLA disclosure. The loss extends to the entire US market, with the average US firm experiencing a negative abnormal return of -1.70%. The extent of the market loss, the fact that Sun’s return was significantly more negative than the return for the overall market and the huge subsequent decline in the approval rate of Sun’s auditor by Sun’s shareholders strongly suggest that shareholders were reacting to Sun’s LLA disclosure.

Extant studies have examined the overall stock market effects of certain events (see, e.g., Dee, Lulseged, and Zhang 2011); however, such studies are susceptible to the effects of confounding events. There were two potentially confounding events around Sun’s disclosure that could affect our interpretation of the returns associated with Sun’s disclosure: the September 20, 2005 decision of the Federal Open Market Committee (FOMC) to raise the Federal Funds Rate and the Federal Discount Rate by a quarter percentage point and the approach of Hurricane Rita. As discussed in Section 4.2, we find reliable evidence that these events are unlikely to explain the observed negative abnormal returns.

To further link the stock market movement on September 20, 2005 to the LLA disclosure by Sun Microsystems, we exploit the fact that the disclosure concerns an audit engagement letter from EY. At the time of the disclosure, investors did not know the extent of the LLA practice. Consistent with the negative market reaction that we observe on September 20, 2005 being at least partly associated with the LLA disclosure, the negative return is, on average, significantly stronger for the EY clients than for the non-EY clients.

⁷In its proposed advisory, the FFIEC noted an increase in the type and frequency of LLA clauses in financial institutions’ engagement letters. However, it is generally presumed that the audit firms have LLA clauses in their contracts with unlisted clients. Given that the majority of banks are unlisted and the strong opposition of US regulators to LLA, the FFIEC’s mention of LLA clauses in engagement letters in no way implies that listed firms had LLA clauses in their contracts.

Louis et al.'s (2019) suggestion that the extant LLA clauses do not negatively affect reporting quality would indicate that the negative market reaction to Sun's disclosure would be driven by unsophisticated investors. However, the market reaction to the disclosure is actually substantially stronger for firms that have large concentrations of institutional ownership than for other firms. This evidence is consistent with the extant anecdotal evidence that institutional investors strongly oppose the LLA practice and the fact that individual investors could be less likely to discover Sun's LLA disclosure on time and move stock so strongly and so fast.

In spite of our best effort, we cannot rule out the possibility that our results could be contaminated by the concurrent events. However, there was no obvious contaminating event on the day the WSJ publicized the LLA practice, offering a rather clean setting to examine the market reaction to the revelation of the LLA practice. Because Sun's disclosure preceded the WSJ article, the information content of the article was not totally new. However, the market can respond to recycled news many months after the same news was first reported (Huberman and Regev 2001). More importantly, upon reading Sun's disclosure, investors would not know the extent to which the LLA practice is limited to EY and a few clients. The WSJ article indicated that the LLA practice was widespread, provided broader dissemination of the LLA practice, and extensively discussed the involvement of the audit firms. For instance, the article reported the observation by Lynn Turner, a former SEC chief accountant, that "all four accounting firms are demanding the companies include these liability cap clauses in their contracts." Therefore, the market reaction to the publication is likely to be informative about investors' perception of LLA.

Sun Microsystems experienced a substantially more negative return than the overall market when it disclosed the inclusion of the LLA clause in its audit engagement letter. However, there is no reason why Sun should be overly punished for disclosing a practice that is common at other firms, who choose to not disclose the practice. Accordingly, Sun's losses partly reversed when the WSJ article confirms that the LLA practice is widespread, and not limited to Sun Microsystems.

In contrast, the rest of the U.S. market experienced further losses after the WSJ publication (-0.835% or a total market loss of \$145.24 billion). The negative abnormal returns could be consistent with the fact that LLA clauses can reduce the insurance value of the audit. However, considering the relatively small sizes of the audit firms, the market loss we observe is too large to represent only the marginal change in the insurance value. Note, however, that, while the \$145.24 billion loss is very large, it represents only a 0.835% reduction in market value, which is quite plausible if investors believe that LLA would lead to less stringent audits. To obtain a 0.835% reduction in the value of a firm that has a cost of capital of 10% (for instance), the cost of capital would need to increase only to about 10.087%, which is reasonable given that we are concerned by the effect of only a marginal change in perceived audit quality.⁸

Finally, we conduct cross-sectional tests that more directly link the market reaction to potential concerns about audit quality. Consistent with the stock market losses being associated with concerns about audit quality, the reduction in firm value is strongly related to clients' incentives and ability to misreport. Specifically, the negative market reaction is less pronounced when a firm's board of directors is dominated by outsiders and more pronounced when a firm's earnings reporting quality is low, the firm's recent reported earnings barely meet the average analyst earnings forecasts, the firm recently issued stocks, and the managers have recently sold stocks on their own accounts. Overall, the evidence suggests that investors attribute a substantial premium to external audits and that investors' negative perception of audit quality significantly increases issuers' cost of capital and, consequently, adversely affects firm value.

The remainder of this paper is organized as follows. The next section describes the context and relevance of the LLA clauses. Section 3 analyzes the effect of the LLA disclosure on auditor ratification by shareholders. Section 4 analyzes the effect of the LLA disclosure on firm value. We conclude in Section 5.

⁸The present value of a perpetuity will change by about 0.827% if the capitalization rate increases from 10% to 10.087%.

2. Background information on the LLA clauses

Concerned about their huge litigation costs, the audit firms were among the strongest supporters of the PSLRA and the SLUSA. The acts create a more favorable litigation environment for the audit firms (SEC 2000), by replacing joint-and-several liability by proportionate liability in most allegations of Rule 10b-5 violations and restricting shareholders' ability to successfully file class-action lawsuits against auditors.

To further limit their liabilities, the audit firms started to include LLA clauses in the engagement letters. The extant LLA agreements provide for alternative dispute resolution procedures and exclusions of punitive damages, which can be awarded if an audit firm is found negligent in failing to detect a fraud.⁹ EY admits that such "clauses have been part of our standard client agreements for some time and are not new" (Rapoport 2005). KPMG argues that the requirement to seek arbitration "is a common mechanism for a cost-effective forum, which allows both parties the ability to control the costs normally associated with litigation. We believe alternative dispute resolution is consistent with maintaining auditor independence" (Reilly 2006). The LLA agreements are likely to provide meaningful protections to the audit firms against some costly lawsuits. The agreements are not legally prohibited, although the SEC is concerned that they could give the appearance of a conflict of interest and impair independence.¹⁰ Details on the nature and the legal aspects of the LLA clauses are provided in Section II of Louis et al. (2019).

The LLA clauses do not preclude third-party lawsuits. However, because of the limits imposed by the 1990s' acts on investors' ability to sue auditors, client lawsuits, either directly by the clients or by derivative shareholder plaintiffs, have become one of the major sources of auditor concerns. For instance, in 1999, Cendant sued EY after the company faced a multi-billion dollar

⁹It is quite common for plaintiffs to claim that auditors are negligent and to ask for punitive damages. Using the Google search engine, we were able to find numerous examples where the plaintiffs argued that the audit firm should be subject to punitive damages (We search, for instance, for KPMG "punitive damages"; EY "punitive damages"; PwC "punitive damages"; and Deloitte "punitive damages"). In one case, a court required BDO Seidman to pay more than \$351 million in punitive damages.

¹⁰<http://www.ffiec.gov/press/proposedinteragencyadvisory.pdf>

lawsuit by shareholders in connection with a 1998 accounting scandal.¹¹ In 2002, Adelphia sued Deloitte, claiming that Deloitte is partly responsible for the alleged massive fraud that led Adelphia to file for bankruptcy protection and cost its shareholders billions of dollars.¹² In 2003, stockholder derivative plaintiffs, acting on behalf of HealthSouth, also filed a lawsuit against EY alleging that EY acted recklessly and with gross negligence and failed to perform reviews and audits of its financial statements with due professional care.¹³ In 2003, AMERCO (parent of U-Haul) also sued PwC for \$2.5 billion, claiming negligence and fraud in relation to a series of events that led to AMERCO restating its financial results. In 2006, Fannie Mae sued KPMG for \$2 billion, alleging that the auditor failed to prevent \$6.3 billion in accounting errors that resulted in restatements.¹⁴ In 2011, Navistar also filed a lawsuit against Deloitte for damages in excess of \$500 million, many years after the company dismissed Deloitte as its auditor, alleging that Deloitte committed fraud and negligence that forced Navistar to restate earnings.¹⁵

EY ultimately paid \$298.5 million to settle the suit with Cendant, almost as much as the \$335 million it paid to the shareholders of Cendant in a separate lawsuit (Reilly and Koppel 2008). Similarly, Deloitte paid \$167.5 million to Adelphia, which was only slightly lower than the settlement of \$210 million to Adelphia's stockholders. In 2004, PwC settled its suit with AMERCO for more than \$50 million. In May 2010, Fannie Mae and KPMG revealed that they had reached an undisclosed settlement. Most recently, in January 2013, Deloitte settled for an undisclosed sum the lawsuit by Navistar. However, the lawsuit by HealthSouth was referred to arbitration and resulted in a ruling in favor of EY.

¹¹<http://online.wsj.com/articles/SB917311181894647000>

¹²<http://ww2.cfo.com/accounting-tax/2007/08/deloitte-to-pay-167-5m-in-adelphia-case> and <http://www.nytimes.com/2006/12/09/business/09adelphia.html>.

¹³<http://www.prnewswire.com/news-releases/healthsouth-announces-decision-of-ernst--young-arbitration-panel-rules-against-healthsouth-on-legal-defense-184022831.html>

¹⁴http://www.nytimes.com/2006/12/12/business/worldbusiness/12iht-suit.3880001.html?_r=0

¹⁵<http://www.reuters.com/article/2011/04/26/navistar-deloitte-lawsuit-idUSN2629823320110426>

Shareholders could be concerned about the LLA clauses undermining the value of the insurance provided by the auditors. However, we find no indication in the discussions about the issue that the loss of the insurance value is a major concern for investors. Their main concern was that the agreements are relieving "auditors of responsibility and thus encouraging less stringent audits" (Rapoport 2005). Investors' potential losses from impaired audit quality may not be fully recovered from litigation against the company and the auditor. Thus, investors are concerned about any issue that they perceive to have the potential to impair audit quality, despite the ability to sue for recovery of their losses.

The anecdotal evidence also suggests that many firms do not appear to have "a lot of leverage to remove the language" in their engagement letters and maintain that they felt pressured into accepting the clauses "rather than risk being dumped by their auditors" (Reilly 2006). As Judy McReynolds, the chief financial officer of Arkansas Best, puts it, although she is not necessarily opposed to the clauses, her firm simply did not "have the ability to say no" (Reilly 2006). Lynn Turner, the chairman of Sun Microsystems's audit committee, justifies his decision to accept the LLA clause by arguing that audit-committee chairs are faced with a *fait accompli* when asked to sign the agreements (Rapoport 2005).

There is also a concern that some managers could sign audit engagement letters without reviewing all of the provisions in the letters or understanding the full implications of the provisions. The oversight is possible if some managers focus on negotiating audit fees and consider the rest of the engagement letter a routine matter. The FFIEC and the agencies that it represents were concerned enough about this possibility that they "encourage boards of directors, audit committees, and management to closely review all of the provisions in the external audit engagement letter before agreeing to sign." They also maintain that, "[t]o assure that those charged with engaging the external auditor make a fully informed decision, any agreement such as an engagement letter that affects the financial institution's legal rights should be carefully reviewed

by the financial institution's legal counsel,"¹⁶ suggesting that the implications of LLA clauses may not be fully understood even by the managers who sign the contracts. Ted White, deputy director of the Council of Institutional Investors, is also unconvinced that audit committees are aware of the LLA practice (Rapoport 2005).

The reason why clients started to disclose the existence of the LLA clauses is not obvious. However, the WSJ links the movement to the "growing debate within accounting and regulatory circles" (Reilly 2006). Judy McReynolds admits that the managers of Arkansas Best, one of the firms that publicly disclosed LLA clauses in their engagement letter, have "thought that really our shareholders ought to understand the fact that the language exists in our agreement" (Reilly 2006). We also note that Sun Microsystems became the first publicly traded company to disclose the existence of an LLA clause in its audit engagement letter on September 20, 2005, only a few months after the FFIEC issued its May 4, 2005 advisory opposing any form of agreement that limits auditor liability. It is also relevant that Lynn Turner was a former SEC chief accountant and was leaving his post as the chairman of Sun's audit committee when Sun made the disclosure.

3. The effect of the LLA disclosure on auditor ratification

The auditor ratification process is arguably one of the most direct avenues for investors to register their dissatisfaction with their auditors. The ratification vote is a routine process that generally does not vary much. For instance, Vanguard generally supports "management's recommendation for the ratification of the auditor, except in instances where audit and audit-related fees make up less than 50% of the total fees paid by the company to the audit firm."¹⁷ Nonetheless, if investors believe that LLA clauses are not in the interest of shareholders, it is plausible that their displeasure could translate into a lower auditor approval rate after the existence

¹⁶<http://www.ffiec.gov/press/proposedinteragencyadvisory.pdf>

¹⁷<https://about.vanguard.com/vanguard-proxy-voting/voting-guidelines/>. The Institutional Shareholder Services (ISS) also recommends a positive vote on auditor ratification unless: (1) an auditor has a financial interest in or association with the company; (2) there is reason to believe that the independent auditor has rendered an opinion that is neither accurate nor indicative of the company's financial position; (3) poor accounting practices are identified that rise to a serious level of concern; or (4) fees for non-audit services are excessive.

of the LLA clauses was revealed. In fact, extant anecdotal evidence does suggest that investors would take the LLA practice into consideration when voting to ratify auditors (see Reilly 2006 and Smith 2006). We therefore analyze how shareholders responded to the LLA disclosure by examining the change in the auditor ratification rate around the LLA disclosure.

3.1 Modeling the change in the auditor ratification rate

On September 20, 2005, Sun Microsystems became the first case of a publicly traded U.S. firm to disclose the existence of LLA clauses in its engagement letters. On November 28, 2005, the WSJ published an article discussing the use of LLA clauses in audit engagement letters. We analyze how investors reacted to these events by first examining the effects of these events on the rate of auditor approval by shareholders.

As shown in Figure 1, the auditor ratification rate was increasing prior to the September 20, 2005 disclosure. Therefore, the change in the ratification rate is likely a biased measure of shareholder reaction to the LLA disclosure. To mitigate the bias, we de-trend the series by analyzing the difference between the change in the approval rate before and after the LLA disclosure. Because auditor ratification is voluntary, to control for differences across firms and mitigate potential self-selection biases, we also hold the sample in the pre-disclosure year and the post-disclosure year constant. However, some firm characteristics and other determinants of auditor ratification rates can change from one year to the next. To ensure that our findings are not due to some correlated omitted variable effect, we extend our analysis to a multivariate setting, where we control for various factors that could explain the change in the approval rate.

Prior studies suggest several variables that could be associated with shareholders' approval of their auditors. Sainty, Taylor, and Williams (2002) suggest that shareholders are more likely to vote against auditor reappointment after an auditor issues a going concern opinion. Raghunandan (2003) and Mishra, Raghunandan, and Rama (2005) find that shareholders are more likely to vote against auditor reappointment when an auditor performs a high level of nonaudit services.

Actually, many institutions indicate that a high level of nonaudit services is the main reason why they would vote against the reappointment of an auditor. Dao, Mishra, and Raghunandan (2008) suggest that auditor tenure could be positively related to shareholder votes against auditors. Finally, Liu, Raghunandan, and Rama (2009) and Hermanson, Krishnan, and Ye (2009) suggest that a restatement increases the likelihood that shareholders would vote against an auditor. We control for these variables and other potentially relevant factors. More specifically, we model the change in the auditor approval rate as follows:

$$\begin{aligned} \Delta APP_{it} = & \alpha_1 AFTER_{it} + \alpha_2 \Delta IO_{it} + \alpha_3 \Delta LASSET_{it} + \alpha_4 \Delta BM_{it} + \alpha_5 \Delta LEV_{it} + \alpha_6 \Delta LACOVERAGE_{it} \\ & + \alpha_7 \Delta GCO_{it} + \alpha_8 \Delta RESTATE_{it} + \alpha_9 \Delta LOSS_{it} + \alpha_{10} \Delta UNQUALIFIED_{it} + \alpha_{11} \Delta ICW_{it} \\ & + \alpha_{12} \Delta NASRATIO_{it} + \alpha_{13} \Delta DIRVOTES_{it} + \alpha_{14} LTENURE_{it} + \alpha_{15} NBIG4_{it} \\ & + Firm\ Fixed\ Effects + \varepsilon_{it}, \end{aligned} \quad (1)$$

where

ΔAPP is the annual change in a firm's auditor approval rate by shareholders in year t [which is either the year (365 days) before September 20, 2005 (the date of the first disclosure of LLA in audit engagement letters) or the year after September 20, 2005];

$AFTER$ is a binary variable taking the value one for the year after September 20, 2005 (the date of the first disclosure of LLA in audit engagement letters) and zero for the year before September 20, 2005;

ΔIO is the annual change in proportion of institutional ownership at the end of the fiscal year prior to the vote in year t;

$\Delta LASSET$ is the change in natural logarithm of a company's total assets ($ASSET$) at the end of the fiscal year prior to the vote in year t;

ΔBM is the change in firm's book-to-market value of equity at the end of the fiscal year prior to the vote in year t;

ΔLEV is the change in firm's leverage ratio (debt divided by equity) at the end of the fiscal year prior to the vote in year t;

$\Delta LACOVERAGE$ is the change in log of one plus the number of analysts covering the firm in the last IBES analyst consensus annual earnings forecast prior to the vote in year t (the number of analysts is set to zero if the firm has no forecast);

ΔGCO is the change in an indicator variable that takes the value one if the company receives a going concern opinion during the fiscal year prior to the vote in year t and zero otherwise;

$\Delta RESTATE$ is the change in an indicator variable that takes the value one if the company restates its financial statements during the fiscal year prior to the vote in year t and zero otherwise;

$\Delta LOSS$ is the change in an indicator variable that takes the value one if a company's net income for the current fiscal year prior to the vote in year t is negative and zero otherwise;

$\Delta UNQUALIFIED$ is the change in an indicator variable that takes the value one if the company receives a clean audit opinion in the fiscal year prior to the vote in year t and zero otherwise (i.e., if the company receives an adverse opinion, no opinion, a qualified opinion, or an unqualified opinion with additional language);

ΔICW is the change in an indicator variable that takes the value one if the company has been identified to have one or more internal control weaknesses in the fiscal year prior to the vote in year t and zero otherwise;

$\Delta NASRATIO$ is the change in ratio of nonaudit fees to audit fees in the fiscal year prior to the vote in year t ;

$\Delta DIRVOTES$ is the change in minimum percentage of the votes against the election of a director prior to the vote in year t ;

$LTENURE$ is the natural logarithm of auditor tenure with the client prior to the vote in year t ; and

$NBIG4$ is a binary variable taking the value one if the firm is audited prior to the vote in year t by a non-Big 4 audit firm and zero otherwise.

3.2 Descriptive statistics

We first present the characteristics of the sample firms used in the auditor ratification test in Table 1. The statistics reported in Column (1) of Table 1 show that the sample firms experienced some significant changes. On average, institutional ownership, analyst coverage, total assets, the number of restatements, and the proportion of unqualified opinions have been increasing for the sample firms. Book-to-market value of equity, the proportion of going concern opinions, the proportion of firms reporting losses, the proportion of firms reporting internal control weaknesses, and the ratio of non-audit fees to audit fees have been decreasing.

We also present the average characteristics of the clients of the Big 4 audit firms and the clients of the non-Big 4 audit firms separately in Columns (2) and (3), respectively. As expected,

most of the observations involve clients of the Big 4 audit firms. However, except for the number of restatements and the proportion of firms reporting losses, the patterns are similar across the clients of the Big 4 audit firms and the clients of the non-Big audit firms.

3.3 Univariate results

Sun Microsystem was the first publicly traded firm to disclose the existence of an LLA clause in its audit engagement letter. The disclosure was made on September 20, 2005. On October 27, 2005, about one month after the LLA disclosure, Sun's shareholders had the opportunity to vote to reappoint EY as Sun's auditor. The approval rate of EY by Sun's shareholders fell from 83.3% in the year prior to the disclosure to 73.2% in the year after the disclosure, which constitutes a massive decline for a routine procedure like the ratification of an auditor's reappointment.

In Figure 1, we plot the pattern of auditor ratification rate over the seven years centered on the year after the September 20, 2005 disclosure for the broader sample of firms with ratification votes on RiskMetrics. Again, we use a constant sample of firms. As indicated in the graph, the auditor ratification rate shows a strong upward trend prior to the first LLA disclosure, as the country was emerging from the accounting scandals of the early 2000s. The ratification rate peaked right before the first LLA disclosure and trended down afterwards. These observations are consistent with the conjecture that investors reacted negatively to the LLA disclosure by voting against the ratification of their auditors.

The univariate results in Table 2 show that the average changes in auditor approval rates after the first LLA disclosure for the full sample, the clients of the Big 4 audit firms, and the clients of the non-Big 4 audit firms are -0.43%, -0.44%, and -0.16%, respectively. The average change in the auditor approval rates is statistically significant at the 5 percent level in a one-tail test for the full sample and the Big 4 sample and is statistically insignificant for the non-Big 4 sample. The weaker results for the clients of the non-Big 4 auditors are consistent with the fact that the LLA practice was directly associated with the Big 4 audit firms, as opposed to the non-Big 4 firms.

Shareholders are also likely to hold the Big 4 auditors to higher standards. Moreover, Lynn Turner, a former SEC chief accountant, linked the LLA practice to the Big 4 firms, noting in the WSJ article that “all four accounting firms are demanding the companies include these liability cap clauses in their contracts.”

Considering that auditor ratification is a routine procedure, the 0.43% decrease in the ratification rate for the full sample is quite material. Moreover, the -0.43% is likely a biased measure of the market reaction to the LLA disclosure, given that the ratification rate was non-stationary prior to the first LLA disclosure, as shown in Figure 1. Therefore, an alternative, and arguably better, measure of the market reaction to the disclosure is the difference between the change in the approval rate after the LLA disclosure and the change in the ratification rate before the disclosure. As shown in Column (3) of Table 2, the difference in the change in the approval rate for the full sample is -1.82%, which is statistically significant at the 1 percent level.

We also report Pearson and Spearman correlations in Table 3. Again, we find a strong negative correlation between the change in the auditor ratification rate (ΔAPP) and *AFTER*, the indicator for the year after the first LLA disclosure (as opposed to the year before). ΔAPP is also positively related to the change in institutional ownership and the change in the proportion of unqualified opinions, and negatively related to the change in the ratio of non-audit fees to audit fees. The negative association between auditor ratification rate and non-audit fees is consistent with the fact that a high level of non-audit services is the main reason why institutional investors and the Institutional Shareholder Services (ISS) would vote, or recommend a vote, against the reappointment of an auditor.

We also note that many of the sample firms’ characteristics changed between the year prior to the first LLA disclosure and the year after the disclosure. The indicator for the year after the disclosure (*AFTER*) is negatively correlated with the proportion of clients audited by the Big 4 firms and the changes in institutional ownership, analyst coverage, assets, the number of

restatements, the proportion of unqualified opinions, and the proportion of firms with internal control weaknesses. It is positively related to auditor tenure and the changes in book-to-market value of equity, leverage, the proportion of firms reporting losses, and the ratio of non-audit fees to audit fees. Below, we control for these variables and others in our multivariate analyses.

3.4 Multivariate results

We report the regression results in Table 4. The multivariate results are consistent with the univariate results reported in Tables 2 and 3. More specifically, we find that the conditional difference in the change in auditor approval rates from the year before to the year after the first LLA disclosure is -1.5%, with a t -value of -3.30. We find no evidence that the apparent LLA effect is different across Big 4 and non-Big 4 audit firms. Combined with the anecdotal evidence linking LLA clauses to their deliberation on auditor selection (Reilly 2006; Smith 2006), the empirical evidence strongly supports the notion that investors disapprove of the LLA practice.

4. The effect of the LLA disclosure on firm value

There are two important dates when the stock market could have reacted to the LLA disclosure: September 20, 2005 and November 28, 2005. The former is the date when Sun Microsystems became the first publicly traded U.S. firm to disclose the existence of LLA clauses in its engagement letters. The latter is the date when the WSJ discussed the use of LLA clauses in audit engagement letters. To analyze the effect of perceived audit quality on firm value, we examine the market reactions to the two events.

4.1 Measuring abnormal returns

Because we are dealing with a market-wide event, it is very important to pinpoint the event time to minimize noise associated with the potential effects of concurrent events. The timing of the WSJ article is clear. The contents of WSJ articles are available to the market the morning of the publication date or the night before. Therefore, the effect of the publication should be reflected

in stock prices on the day of the publication. Hence, we measure the market reaction to the content of the WSJ article by the abnormal return on the day of the publication (Day 0). The timing of Sun Microsystems' disclosure is less clear. The disclosure can be filed early in the day, late in the afternoon, or after the regular trading hours. It can also bear an after-hour time stamp, although it was disclosed earlier in the day. Therefore, to ensure that we capture the time when the information reached the market, we measure the abnormal return on the day of, and the day after, the disclosure (Days 0 and +1).

To estimate a firm's abnormal return, we use a market model, relying on an index of foreign stocks as the benchmark. Following Francis, Nanda, and Wang (2006), we compute the foreign market index using Level II and Level III American Deposit Receipts (ADRs) listed on the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), or the National Association of Securities Dealers Automated Quotations (NASDAQ). The LLA revelation might raise concerns about foreign firms' audit quality, biasing the abnormal returns downwards. However, because the LLA revelation relates to U.S. firms and given that the U.S. tend to be relatively very litigious, the effect of the revelation should be more pronounced for U.S. firms. Moreover, given that audits performed in the U.S. are generally perceived to be of higher quality than those performed overseas, anything that adversely affects that perception would have a negative impact on the U.S. firms and such impact would generally be more negative for the U.S. firms. Therefore, to test whether the market reacted negatively to the LLA disclosure, we use the following model:

$$RET_{i,t} = \alpha_0 + \alpha_1 ADR_t + \sum_{e=0}^1 \alpha_{1+e} Event_Day_{t,e} + \varepsilon_{i,t} \quad (2)$$

where $RET_{i,t}$ is the return of firm i on day t ; ADR_t is the return of the ADR index on day t ; $Event_Day_{t,e}$ is an indicator variable taking the value one on the event day e and zero otherwise. For Sun Microsystems' disclosure, the event days are September 20 and 21, 2005 and the model is

estimated over the six months ending on November 20, 2005 (or two months after the event date). For the WSJ publication, the event day is November 28, 2005 and the model is estimated over the six months starting on September 28, 2005 (or two months before the event date). We chose these windows to avoid cross-contaminations. The abnormal return associated with an event date is given by the coefficient on *Event_Day* and is essentially identical to the forecast error from a similar model that excludes *Event_Day* as a regressor. We use the coefficient on *Event_Day*, as opposed to the forecast error, because the potential bias in the standard error of the coefficient is more amenable to corrections for cross-sectional correlations than the forecast error. We correct for cross-sectional correlations by clustering the standard errors at the firm level in pooled regressions.

4.2 The stock price effect of the first LLA clause disclosure

4.2.1 Main findings

We report the market reaction to Sun Microsystems' LLA disclosure in Table 5. Sun Microsystems suffers a substantial loss (−2.490%) upon its disclosure of the LLA clause in its audit engagement letter. The loss apparently extends to the entire US market, with the overall market experiencing an average loss of −1.554%. The abnormal return for Sun Microsystems is −2.421% and the mean abnormal return for the whole US market (ex Sun) is −1.701%, for a total market capitalization loss of about \$299.93 billion.¹⁸ These findings, coupled with the change in the auditor ratification votes, strongly suggest that investors reacted negatively to the disclosure of LLA in audit engagement letters.

It is worth noting that the immediate market reaction on September 20, 2005 is much

¹⁸To estimate the total market loss, we first compute the loss for each firm by multiplying the market value of the firm at the market close on September 19, 2005 by its abnormal return and then sum up the losses for all the firms. The total market loss is estimated at \$274.43 billion if we use the raw returns instead of the abnormal returns.

stronger for Sun Microsystems than for the overall market. The stronger reaction for the overall market occurs on the following day, September 21. It appears that investors first discount Sun Microsystems' stock price and then discount the rest of the market. The market adjusts firm values across the board, mainly on September 21, as if it presumes that audit firms are generally using, or will be using, LLA clauses in their engagement letters. The \$299.93 billion loss in market capitalization is quite large. However, in a world without auditing or with unreliable auditing, the cost of capital is likely to be prohibitively large. Note that, to obtain the 1.7% reduction in the value of a firm that has a cost of capital of 10% (for instance), the cost of capital needs to increase only to about 10.173%. Therefore, it is conceivable that the disclosure of the LLA clauses could have an enormous impact on firm value if investors believe that they lead to less stringent audits.

Sun Microsystems could perform worse than the rest of the U.S. market because there were other events around Sun's disclosure that affected Sun's industry (SIC code 3571: electronic computers) more than the market. However, untabulated results show that the average return of the other firms in Sun's industry is actually positive over the day of, and the day after, Sun's disclosure, with an average raw return of 0.394% and an average abnormal return of 0.148%. Hence, it does not appear that Sun Microsystems' effect reflects some sort of industry-wide effect.

The extent of the market losses and the fact that Sun's return was significantly more negative than the return for the overall market as well as the returns of its industry peers are supportive of the notion that investors were reacting to Sun's disclosure. Investors could respond negatively to the LLA disclosure if they perceive that the LLA clauses indirectly undermine their potential claims against the auditors. However, the total market loss of \$299.93 billion is much larger than the total value of the US audit firms. Such a loss cannot represent only the marginal change in the value of the insurance offered by the audit firms. In addition, we find no indication in the discussions about the LLA issue that shareholders are concerned about the LLA clauses

undermining the value of the insurance provided by the auditors. Instead, their concern was that the agreements are relieving auditors of responsibility and thus encouraging less stringent audits.

4.2.2 Controlling for the potential impact of confounding events

There were two potentially confounding events around Sun's disclosure. First, on September 20, 2005, the FOMC raised the Federal Funds Rate and the Federal Discount Rate by a quarter percentage point, which could induce a negative market reaction. Second, Hurricane Rita entered the Straits of Florida on September 20, 2005, before strengthening into a Category 2 hurricane. Less than a month after Hurricane Katrina devastated the Southeast region of the U.S., investors could have been concerned about the potential impact of Rita on the economy.

To ascertain whether the returns associated with Sun's LLA disclosure is likely to be attributable to the September 20, 2005 FOMC decision to raise short-term interest rates, we compare the market reaction to the September 20, 2005 decision with the market reaction to the other FOMC rate-increase decisions made around the same period. If the market reacts negatively to the September 20, 2005 LLA disclosure, we expect the September 20, 2005 returns to be more negative than the returns on the other FOMC rate-increase decision date. We also analyze the returns for those firms that are likely to benefit from increases in short-term interest rates. While stock prices generally respond negatively to increases in short-term interest rates, the prices of a few stocks tend to respond positively. Some firms benefit from increases in short-term interest rates because they manage substantial amounts of cash that they invest in short-term instruments (see Walia 2013). These firms include insurance brokers, security brokers, commodity contracts brokers, and payroll processors. A negative return for these firms on September 20, 2005 cannot be attributed to the September 20, 2005 FOMC decision. We follow a similar approach to ascertain whether the returns could be attributable to the expected cost of Rita. More specifically, we analyze the returns for those firms that are likely to benefit from hurricanes, which include firms in the following industries: (1) building materials, hardware, and mobile home dealers; (2) pumps and

pumping equipment; (3) building construction; (4) heavy construction; and (5) construction special trade. Because firms in these industries tend to benefit from hurricanes, a negative abnormal return for these firms on September 20, 2005 cannot be attributed to Hurricane Rita.

The results reported in Panel A of Table 6 provides strong evidence that the FOMC rate-increase decision is unlikely to be the primary driver of the negative abnormal returns following Sun's September 20, 2005 LLA disclosure. The abnormal returns for the six rate-hike announcements surrounding the September 20, 2005 event were relatively small, with an average of -0.031%, compared to -1.550% for the September 20, 2005 event. The abnormal returns after the rate hike announcements were small because the increases were expected. The Federal Reserve was consistently increasing the Federal Funds Rate and the Federal Discount Rate by 25 basis points at each meeting from June 30, 2004 until June 29, 2006.

It is conceivable that, although the other rate hikes were expected, the September 20, 2005 hike was not, which could explain the large negative return around Sun's September 20, 2005 disclosure. To assess this possibility, we analyze the abnormal returns for insurance brokers, security brokers, commodity contracts brokers, and payroll processors, which are firms that are likely to benefit from increases in short-term interest rates. If the September 20, 2005 FOMC decision was unexpected and Sun's LLA disclosure had no effect on US stock prices, then we would expect these firms to experience positive returns around the September 20, 2005 disclosure. The results reported in Panel B of Table 6 show that these firms also experienced strong negative returns around the September 20, 2005 announcement. In contrast, they experienced positive, though statistically insignificant, abnormal returns after both the pre-9/20/2005 and the post-9/20/2005 rate hike announcements. These results are consistent with the notion that these firms tend to benefit from increases in short-term interest rates and that the rate hikes in question were generally expected, and strongly indicate that the negative abnormal returns around Sun's September 20, 2005 disclosure cannot be attributed to the September 20, 2005 FOMC decision.

We also ascertain whether the returns could be attributable to the expected cost of Hurricane Rita. We conduct the analysis by examining the returns for those firms that are likely to benefit from a hurricane, including firms in the following industries: (1) building materials, hardware, and mobile home dealers; (2) pumps and pumping equipment; (3) heavy construction; and (4) construction special trade. The results reported in Panel C of Table 6 show that even these firms experience strong negative returns after Sun's September 20, 2005 LLA disclosure. Given that firms in these industries should generally benefit from hurricanes, their negative abnormal return around the LLA disclosure cannot be attributed to the approach of Hurricane Rita.

4.2.3 EY clients versus Non-EY clients

The September 20, 2005 LLA disclosure by Sun Microsystems concerns an audit engagement letter from EY. At the time of the disclosure, investors did not know the extent of the LLA practice. It would appear then that, after reading Sun's disclosure, investors would assign a higher likelihood to the inclusion of LLA in engagement letters from EY than from the other audit firms. Therefore, if the negative market reaction that we observe is at least partly due to the LLA disclosure, then the effect should be stronger for the EY clients than for the non-EY clients.

The results reported in Table 7 strongly support the notion that the market reaction is associated with the LLA disclosure. The average EY clients suffers a negative abnormal return of -1.962% upon the disclosure that EY includes an LLA clause in Sun's audit engagement letter. In contrast, the average non-EY clients suffers a negative abnormal return -1.627%. The differential return across the two groups is significant below the 1% level.

4.2.4 Institutional vs. Non-Institutional Investors

We also analyze the association between the market reaction to the disclosure and institutional ownership. Louis et al. (2019) find no evidence suggesting that LLA clauses

negatively affect reporting quality, which would suggest that the negative market reaction is driven by unsophisticated investors. However, as discussed earlier, extant anecdotal evidence indicates that institutional investors strongly oppose the LLA practice.¹⁹ Moreover, it seems unlikely that there would be many small individual investors who could discover Sun's LLA disclosure on time and who would have the trading speed and power to have the strong and quick impact on stock prices that we observe immediately after the disclosure. Accordingly, the results reported in Table 8, show that the market reaction to the disclosure is substantially stronger for firms that have large concentrations of institutional ownership (-2.745%) than for other firms (-1.438%).

4.3 The market reaction to the publication of the WSJ article

In spite of our best effort, we cannot rule out the possibility that the confounding events contaminated our results. Hence, the returns around Sun Microsystems' disclosure should be interpreted with caution. However, an extensive search provides no evidence of contaminating events on November 28, 2005, when the WSJ publicized the LLA practice. Moreover, it is not clear how widespread the knowledge of Sun's disclosure was. Moreover, it was practically impossible for those investors who access the disclosure to determine the extent of the LLA practice from reading the disclosure. The WSJ article, in contrast, provided broader dissemination and discussion of the LLA practice and indicated that it was an industry-wide practice, particularly among the Big 4 firms. Therefore, the WSJ publication provides a cleaner setting to analyze investors' perception of LLA clauses. Accordingly, we will focus the rest of the analysis on the WSJ article.

¹⁹The Council of Institutional Investors argue that LLAs could impair auditor independence and "potentially place US companies, shareholders, and capital markets at risk" (Mahoney 2006). Cynthia Richson, the Ohio Public Employees Retirement System's governance officer, also claims that LLAs are a "disservice to investors" (Rapoport 2005). Gregory Smith, director of operations for the Investment Company Institute (ICI), also suggested that shareholders would incorporate LLA clause information in their deliberation on auditor selection (Smith 2006).

4.3.1 The average effect

The results reported in Table 9 show that the market reacts negatively to the November 28, 2005 WSJ publication. The mean market abnormal return on the day of the publication is -0.835% , for a total market loss of \$145.24 billion. We obtain this estimate by multiplying the market value of each firm at the market close on November 27, 2005 by its abnormal return and then sum up the losses for all the firms.

The results reported in Table 5 show that the Sun Microsystems experienced a substantially more negative return than the overall market when it disclosed the inclusion of the LLA clause in its audit engagement letter (-2.49% versus -1.554%). We would then expect Sun Microsystems to fare significantly better than the rest of the market when the WSJ article confirms that the LLA practice is widespread, not being limited to Sun Microsystems. The results reported in Table 9 are consistent with our expectations. While the overall market experienced a negative average raw (abnormal) return of -0.956% (-0.835%) on the day of the WSJ article publication, Sun Microsystems actually experience a positive raw (abnormal) return of 0.513% (0.501%).

4.3.2 Cross-sectional variations: Regression model

Investors' concerns about auditor independence are that the audit could be more lenient, allowing managers to misreport. Therefore, if the loss in market value on the day of the WSJ publication is due to concerns about auditor independence, then we expect the loss to be more pronounced when a client's incentives and ability to misreport are stronger. More specifically, we expect the market reaction to the WSJ publication to be associated with a client's financial reporting quality, the extent to which a client's recent reported earnings might seem suspicious, the amount of equity recently issued by the client, the amount of stocks recently sold by insiders on their own accounts, and the independence of the client's board of directors.

We measure financial reporting quality by the average of the absolute value of a client's abnormal accruals over the five years prior to the WSJ publication. We sort the absolute value of

the abnormal accruals into quintiles and create a variable, *PoorQuality*, which takes the value 0.5 if the absolute value of the abnormal accruals falls into the top quintile, -0.5 if it falls into the bottom quintile, and 0 otherwise. We proxy for the extent to which client's recent reported earnings might seem suspicious using a binary variable, *JustMeet*, which takes the value one if the client meets the average analysts' earnings forecast by two cents or less at least half of the time over the four quarters prior to the event date and zero otherwise. We proxy for the managers' incentives to misreport by the extent of their trading activities in their companies' stocks against outsiders. Specifically, we use two binary variables: *StockIssued* and *NetInsiderSelling*. The former takes the value one if the client's stock issuance (Compustat data item: SSTK) scaled by market value over the year prior to the WSJ publication is in the top quintile and zero otherwise. The latter takes the value one if the market value of net selling by insiders over the year prior to the WSJ publication is in the top quintile and zero otherwise. We use the proportion of external directors on a client's board of directors to proxy for board independence. Because the proportion of external directors that is necessary to constrain a manager's incentives to misreport is not clearly determined, we use two separate board independence variables, corresponding to two different thresholds: *BoardInd_Super* and *BoardInd_Simple*. The former is a binary variable taking the value one if the firm's external board members make up more than 80 percent of the board over the year prior to the event date and zero otherwise. The latter is a binary variable taking the value one if the firm's external board members make up more than 50 percent of the board over the year prior to the event date and zero otherwise. In sum, we analyze the cross-sectional variations in investors' reaction to WSJ publication using the following regression model:

$$\begin{aligned}
 ABRET_NOV_i = & \alpha_1 \text{LogSize}_i + \alpha_2 \text{High_IO}_i + \alpha_3 \text{BM}_i + \alpha_4 \text{NBIG4}_i + \alpha_5 \text{EY}_i + \\
 & \alpha_6 \text{PoorQuality}_i + \alpha_7 \text{JustMeet}_i + \alpha_8 \text{StockIssued}_i + \alpha_9 \text{NetInsiderSelling}_i + \\
 & \alpha_{10} \text{BoardInd_Super}_i + \alpha_{11} \text{BoardInd_simple}_i + \text{Industry Fixed Effects}_i + \varepsilon_i \quad (3)
 \end{aligned}$$

where *ABRET_NOV* is firm *i*'s abnormal returns on November 28, 2005, the day of the WSJ publication; and the other variables are described as before.

The data needed to estimate abnormal accruals and the stock issuance data are obtained from Compustat.²⁰ Quarterly analyst earnings forecast data are obtained from the Institutional Brokers Estimate System (IBES). Board of director information is obtained from the Institutional Shareholder Services (ISS). We obtain insider trading data from the Thomson Financial Insider Filings database. A total of 1,181 firms have all the necessary data. We create the binary variables by sorting all the available observations in a respective dataset before we merge the datasets to create the final sample.

4.3.3 Cross-sectional variations: Results

The Pearson and Spearman correlations reported in Table 10 are consistent with the notion that the market reaction to the WSJ publication is related to concerns about audit quality. Specifically, the abnormal return is negatively correlated with *PoorQuality*, *JustMeet*, *StockIssued*, and *NetInsiderSelling*; and it is positively correlated with *BoardInd_Super*. There is a quite strong correlation between *PoorQuality* and *JustMeet*, consistent with firms that just meet benchmarks being more likely to have poor earnings quality. It is remarkable that the correlation between *StockIssued* and *NetInsiderSelling* is also quite strong, consistent with managers simultaneously selling both on their firms' accounts and on their own accounts. We also note that *BoardInd_Super* is negatively correlated with *PoorQuality*, *JustMeet*, *StockIssued* and *NetInsiderSelling*,

²⁰Abnormal accrual is measured by the residual from the Jones (1991) model. For each calendar year and two-digit SIC-code industry, we estimate the following model using all firms that have the necessary data on Compustat:

$$TA_i = \lambda_1 + \lambda_2 \Delta SALES_i + \lambda_3 PPE_i + \lambda_4 LTA_i + \lambda_5 ASSET_i + \varepsilon_i,$$

where *TA* is total accruals (earnings before extraordinary items and discontinued operations minus operating cash flows); $\Delta SALES$ is the annual change in sales; *PPE* is property, plant, and equipment at the beginning of the year; *LTA* is the lag of total accruals (which controls for the fact that some firms inherently have higher accruals and accruals are likely to be correlated over time); and *ASSET* is total assets at the beginning of the year. All the variables are scaled by total assets at the beginning of the year. Deflating the model by assets transforms *ASSET* into a column of ones, allowing us to estimate the model with a standard intercept. To mitigate the effect of outliers and errors in the data, we delete the top and bottom percentiles of the deflated *TA*, $\Delta SALES$, *PPE*, and *LTA*. We also require at least 20 observations for each estimation. We adjust the estimated abnormal accruals for performance using Kothari, Leone, and Wasley's (2005) procedure. For each year and each industry (two-digit SIC code), we create five portfolios with at least four firms each by sorting the data into quintiles based on the return-on-assets from the previous year. The performance-matched abnormal accruals for a firm are the firm-specific abnormal accruals minus the mean abnormal accruals for its respective industry-performance-matched portfolio.

consistent with a super-majority of outsiders on a board constraining opportunistic behaviors by managers. No pair of variables displays excessive correlation, mitigating multicollinearity concerns.

The results of the regression analysis are reported in Table 11. Firms that fall in the top quintile of abnormal accruals experience a more negative market reaction to the WSJ publication than those that fall in the bottom quintile. The difference across the two groups is 0.412% and is significant at the 5% level. Clients that have barely met analyst earnings forecasts also experience a more negative market reaction than other clients. The difference across the two groups of 0.328% is significant at the 1% level. These findings suggest that investors react more negatively to the publication of the WSJ article when they have suspicions that the reported earnings numbers might have been manipulated.

We also find that investors react much more strongly to the WSJ journal publication for firms that recently issue stocks as well as those whose insiders have recently sold large amounts of stocks. More specifically, clients with stock issuance (Compustat data item: SSTK), scaled by market value, in the top quintile experience 0.452% more negative abnormal returns than other clients. Similarly, clients with net insider selling in the top quintile experience 0.202% more negative abnormal returns than other clients.²¹ These results strongly suggest that investors infer that managers issuing stocks have strong incentives to misreport and that the opportunity to do so is higher when auditor independence is impaired.

Moreover, we find that the market reaction to the WSJ article publication is attenuated when a client has a super majority of outsiders on its board of directors. Specifically, clients that have at least 80% of outsiders on their boards experience 0.212% higher abnormal returns than those that have less than 80% outsider representation. This difference is significant at the 5% level

²¹We do not scale insider trading because the incentives of a manager trading on his personal account is generally more related to the dollar amount of the trade, as opposed to the ratio of that amount to the size of the firm. In any case, we include size as a control variable in the regression model, reducing the probability that the coefficient on the market value of insider trading would capture the effect of firm size. Managers' wealth could be an important factor, but we do not observe it.

and is consistent with a lack of auditor independence being less concerning to investors when an audit client's board of directors is highly independent.

We also find that the negative market reaction to the WSJ article is significantly stronger for firms that have large concentrations of institutional ownership than for other firms, which is consistent with extant anecdotal evidence indicates that institutional investors strongly oppose the LLA practice. We also observe that the loss in market value on the day of the WSJ article publication is smaller for the clients of the non-Big 4 auditors than for the clients of the Big 4 auditors. The auditor-size effect is consistent with the fact the Big 4 auditors have presumably more to lose from a loss of confidence in the audit process. If their clients pay higher audit fees and are traded at a premium because their audit quality is considered superior, any negative shift in investor perception of audit quality could have a more pronounced effect on the valuation of their clients. Smaller audit clients generally face more pressure to accept LLA clauses.²² Moreover, smaller audit firms generally face higher risk because they audit more risky firms. Their survival is also more at stake because of their limited ability to face punitive damages. The Big 4 firms also have stronger incentives to protect their brand and avoid the dilution that would potentially be associated with the adoption of LLA clauses. Therefore, once investors discover an LLA clause in an engagement letter, they could assume that the practice is, or would become, more prevalent among the non-Big 4 clients. However, the publication of the WSJ article was the first widespread public dissemination of the LLA practice. In this article, Lynn Turner, a former SEC chief accountant, linked the practice to the Big 4 firms, noting that "all four accounting firms are demanding the companies include these liability cap clauses in their contracts".

The results suggest that investors believe that LLA clauses impair audit quality and that audit quality impairment reduces firm value. We note, however, that the negative market reaction by itself does not indicate whether investors favor LLA clauses or not. Because LLA clauses

²²See the discussion at: <http://www.ffiec.gov/press/comments/icba.pdf>.

involve a tradeoff between a client's rights to freely sue its auditors and lower audit fees (Louis et al. 2019), investors could support an LLA clause even if it reduces audit quality. Audit fees are generally in the public domain whereas engagement letters are not. Hence, while the negative effects of LLA clauses were not impounded in stock price before the LLA disclosure, the positive effects of the lower audit fees were (when capitalized, these fees represent a non-negligible share of firm value). Therefore, the market reaction to the LLA disclosure reflects only one side of the equation (the negative effects of the LLA clauses), whereas investors are likely to consider both the benefit (lower audit fees) and the cost (lower audit quality). However, although the capitalized value of audit fees is not trivial, the capitalized value of the discount that an auditor would offer to a client for accepting the LLA clauses cannot amount to anything close to the abnormal returns that we observe.²³ Therefore, the change in value associated with the LLA disclosure cannot be attributed only to the potential audit fee differential associated with the LLA clauses. Instead, the results suggest that the effect of the cost of capital increase associated with the negative investor perception of the LLA clauses far exceeds the lower audit cost benefit.²⁴

5. Summary

We find a significant reduction in shareholders' approval of their auditors after the disclosure that audit engagement letters include LLA clauses. Moreover, we observe a substantial decrease in the market value of Sun Microsystems, after it became the first publicly traded firm to disclose the existence of LLA clauses in its audit engagement letter, with the loss of value extending to the entire US market. The extent of the market losses and the fact that Sun's return

²³In 2005, audit fee as a proportion of market value of equity was on average 0.237%. Even with a capitalization rate of 5% in perpetuity, the removal of the LLA clauses would have to cause the average audit fee to increase by more than 20%% to result in a 1% decrease in firm value.

²⁴To understand why this is plausible, it is sufficient to consider the extreme case where auditing is non-existent or unreliable. Corporations would save all or most of the audit fees but their values would plummet because their cost of capital would increase substantially.

was significantly more negative than the return for the overall market are supportive of the notion that the market reacted negatively to Sun's disclosure.

There were potential confounding events around Sun's disclosure that could contaminate our results. We show however that these events are unlikely to fully explain the results. Moreover, there is no evidence of any potentially contaminating event on the day when the WSJ publicized the LLA practice, thereby providing a cleaner setting to test for investors' perception of LLA. We find a strong negative reaction to the WSJ publication, which supports the notion that investors have a negative perception of LLA. Consistent with the reaction being associated with concerns about audit quality, the loss is strongly related to clients' incentives and ability to misreport. Specifically, the loss is more pronounced when a firm's earnings quality is low, the firm's recent reported earnings barely meet the average analyst earnings forecast, the firm has recently issued stocks, and when the managers have recently sold stocks on their own accounts. The loss is attenuated when outsiders constitute a super-majority of the firm's board of directors. The reduction in the market value of U.S. firms is also larger for the Big 4 than for the non-Big 4 clients, which is consistent with the fact that Big 4 auditors have presumably more to lose from a loss of confidence in the audit process.

Our results have implications not only for the debate around auditors' liability exemptions but also for the literature on the value of audit quality in the U.S. Extant studies provide little evidence that stock prices respond to auditor switches. Furthermore, while audit quality is often proxied by the Big 4 versus non-Big 4 dichotomy, the validity of this proxy has recently been questioned. Overall, our empirical evidence suggests that U.S. investors attribute a substantial premium to the external audits and that investors' negative perception of audit quality has an adverse effect on firm value.

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Appendix: Variable description

<i>ABRET_NOV</i>	= a firm's abnormal returns on the day of the first WSJ publication on the issue of LLA clauses in audit engagement letters on November 28, 2005. Data source: CRSP.
<i>ACOVERAGE</i>	= the number of analysts covering the firm in the last IBES analyst consensus annual earnings forecast (the number of analysts is set to zero if the firm has no forecast). Data source: I/B/E/S.
<i>AFTER</i>	= a binary variable taking the value one for the year after September 20, 2005 (the date of the first disclosure of LLA in audit engagement letters) and zero for the year before September 20, 2005.
ΔAPP	= the annual change in a firm's auditor approval rate by shareholders in year <i>t</i> (which is either the year (365 days) before September 20, 2005 (the date of the first disclosure of LLA in audit engagement letters) or the year after September 20, 2005). Data source: RiskMetrics Group.
<i>BM</i>	= a firm's book-to-market value of equity at the end of the fiscal year. Data source: COMPUSTAT.
<i>BoardInd_Simple</i>	= a binary variable taking the value one if the firm's external board members make up more than 50 percent of the board over the year prior to the event date and zero otherwise. Data source: IRRC RiskMetrics.
<i>BoardInd_Super</i>	= a binary variable taking the value one if the firm's external board members make up more than 80 percent of the board over the year prior to the event date and zero otherwise. Data source: IRRC RiskMetrics.
<i>DIRVOTES</i>	= minimum percentage of the votes against the election of a director. Data source: RiskMetrics Group.
<i>EY</i>	= a binary variable taking the value one if the firm is audited by EY and zero otherwise. Data source: COMPUSTAT.
<i>GCO</i>	= an indicator variable that takes the value one if the firm receives a going concern opinion during the fiscal year and zero otherwise. Data source: Audit Analytics.
<i>ICW</i>	= an indicator variable that takes the value one if the firm has been identified to have one or more internal control weaknesses and zero otherwise during the fiscal year. Data source: Audit Analytics.
<i>IO</i>	= the proportion of institutional ownership in the firm at the end of the fiscal year. Data source: Thomson-Reuters Institutional Holdings (13F) Database.
<i>High_IO</i>	= a binary variable taking the value one if the proportion of institutional ownership in the firm at the beginning of the fiscal year is in the top quintile, and zero otherwise. Data source: Thomson-Reuters Institutional Holdings (13F) Database.
<i>JustMeet</i>	= a binary variable taking the value one if actual earnings meet or beat the average analyst forecast by two cents or less at least half of the time over the four quarters prior to the event date and zero otherwise. Data source: I/B/E/S.
<i>LASSET</i>	= the logarithm of a firm's total assets (<i>ASSET</i>) at the end of the fiscal year. Data source: COMPUSTAT.
<i>LogSize</i>	= the logarithm of the firm's market value of equity (<i>SIZE</i>) at the end of the year prior to the event date. Data source: COMPUSTAT.

<i>LEV</i>	= a firm's leverage (total debt/assets) ratio at the end of the fiscal year. Data source: COMPUSTAT.
<i>LOSS</i>	= an indicator variable that takes the value one if a firm's net income for the fiscal year is negative and zero otherwise. Data source: COMPUSTAT.
<i>LTENURE</i>	= the natural logarithm of auditor tenure with the client. Data source: COMPUSTAT.
<i>NASRATIO</i>	= the ratio of nonaudit fees to audit fees during the fiscal year. Data source: Audit Analytics
<i>NetInsiderSelling</i>	= a binary variable taking the value one if the market value of net insider selling at a client over the year prior to the WSJ publication is in the top quintile, and zero otherwise. Data source: Thomson Reuters.
<i>NBIG4</i>	= a binary variable taking the value one if the firm is audited by a non-Big 4 audit firms and zero otherwise. Data source: COMPUSTAT.
<i>PoorQuality</i>	is a binary variable taking the value -0.5 if the absolute value of a firm's average performance adjusted abnormal accruals is in the bottom quintile over the last five years, 0.5 if it is in the top quintile, and zero otherwise. Data source: COMPUSTAT.
<i>RESTATE</i>	= an indicator variable that takes the value one if the firm restates its financial statements during the fiscal year and zero otherwise. Data source: Audit Analytics.
<i>UNQUALIFIED</i>	= an indicator variable that takes the value one if the firm receives a clean audit opinion and zero otherwise (i.e., if the firm receives an adverse opinion, no opinion, a qualified opinion, or an unqualified opinion with additional language). Data source: COMPUSTAT.

Table 1
Average characteristics of the firms used in the auditor ratification analysis

	(1) Full sample (<i>N</i> = 1,994)	(2) Big 4 clients (<i>N</i> = 1,910)	(3) Non-Big 4 clients (<i>N</i> = 84)
<i>ΔIO</i>	0.041 (0.000)	0.040 (0.000)	0.068 (0.000)
<i>ΔLACOVERAGE</i>	0.035 (0.000)	0.033 (0.000)	0.070 (0.228)
<i>ΔLASSET</i>	0.114 (0.000)	0.114 (0.000)	0.116 (0.000)
<i>ΔBM</i>	-0.017 (0.000)	-0.017 (0.000)	-0.015 (0.478)
<i>ΔLEV</i>	-0.003 (0.191)	-0.002 (0.248)	-0.009 (0.463)
<i>ΔGCO</i>	-0.002 (0.083)	-0.001 (0.157)	-0.012 (0.320)
<i>ΔRESTATE</i>	0.019 (0.037)	0.020 (0.025)	-0.024 (0.567)
<i>ΔLOSS</i>	-0.030 (0.000)	-0.032 (0.000)	0.012 (0.708)
<i>ΔUNQUALIFIED</i>	0.191 (0.000)	0.193 (0.000)	0.155 (0.004)
<i>ΔICW</i>	0.057 (0.000)	0.055 (0.000)	0.083 (0.070)
<i>ΔNASRATIO</i>	-0.278 (0.000)	-0.283 (0.000)	-0.156 (0.000)
<i>ΔDIRVOTES</i>	-0.007 (0.252)	-0.007 (0.238)	0.005 (0.111)
<i>LTENURE</i>	2.272 (0.000)	2.313 (0.000)	1.343 (0.000)

Notes: The variables are defined in the appendix, with Δ being a one-year change indicator. The statistics are reported for observations for the year (365 days) before September 20, 2005 (the date of the first LLA disclosure) and the year after September 20, 2005. We hold the sample constant across the two years. Two-tail *p*-values are reported in parentheses.

Table 2
Univariate comparison of the change in the ratification rate

	(1)		(2)		(3)	
	Year before September 20, 2005		Year after September 20, 2005		Difference (2)-(1)	
	Mean	Median	Mean	Median	Mean	Median
Full Sample	1.39%	1.04%	-0.43%	-0.15%	-1.82%	-1.19%
	(0.000)	(0.000)	[0.040]	[0.057]	[0.000]	[0.000]
	<i>N</i> = 997	<i>N</i> = 997	<i>N</i> = 997	<i>N</i> = 997		
Big 4 clients	1.38%	1.00%	-0.44%	-0.15%	-1.82%	-1.15%
	(0.000)	(0.000)	[0.036]	[0.083]	[0.000]	[0.000]
	<i>N</i> = 963	<i>N</i> = 963	<i>N</i> = 947	<i>N</i> = 947		
Non-Big 4 clients	1.58%	1.64%	-0.16%	-0.16%	-1.74%	-1.79%
	(0.266)	(0.008)	[0.457]	[0.176]	[0.195]	[0.006]
	<i>N</i> = 34	<i>N</i> = 34	<i>N</i> = 50	<i>N</i> = 50		

Notes: This table reports the annual change in auditor ratification rates in the year (365 days) before September 20, 2005 (the date of the first LLA disclosure) in Column (1) and the change in the ratification rate in the year (365 days) after September 20, 2005 in Column (2). It also compares the change in the ratification rate across the pre-disclosure year and the post-disclosure year in Column (3). We use a constant sample across the two periods. One-tail *p*-values are reported in square brackets for the change in the ratification rate in the post-disclosure year in Column (2) and for the difference across the pre-disclosure year and the post-disclosure year in Column (3). Because we have no prediction for the change in the ratification rate in the pre-disclosure year, we report two-tail *p*-values in Column (1), which we report in parentheses.

Table 3
Simple correlations between the variables used in the auditor ratification analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) ΔAPP		-0.113 (0.000)	0.023 (0.297)	0.040 (0.073)	0.008 (0.712)	0.015 (0.493)	-0.040 (0.071)	0.014 (0.518)	-0.015 (0.509)	-0.062 (0.006)	0.040 (0.075)	-0.016 (0.473)	-0.104 (0.000)	0.035 (0.116)	0.019 (0.393)	0.002 (0.939)
(2) $AFTER$	-0.154 (0.000)		-0.177 (0.000)	-0.090 (0.000)	-0.082 (0.000)	0.110 (0.000)	-0.003 (0.883)	0.013 (0.564)	-0.115 (0.000)	0.110 (0.000)	-0.149 (0.000)	-0.098 (0.000)	0.154 (0.000)	0.017 (0.454)	0.050 (0.025)	0.040 (0.075)
(3) ΔIO	0.075 (0.001)	-0.221 (0.000)		0.192 (0.000)	0.127 (0.000)	-0.158 (0.000)	0.013 (0.564)	-0.091 (0.000)	0.037 (0.102)	-0.106 (0.000)	0.004 (0.852)	0.034 (0.134)	-0.026 (0.245)	-0.038 (0.094)	-0.083 (0.000)	0.055 (0.014)
(4) $\Delta LACOVERAGE$	0.012 (0.587)	-0.112 (0.000)	0.119 (0.000)		0.160 (0.000)	-0.011 (0.620)	-0.018 (0.426)	-0.064 (0.004)	0.012 (0.602)	-0.048 (0.032)	0.002 (0.927)	-0.022 (0.328)	-0.035 (0.123)	0.023 (0.304)	-0.035 (0.119)	0.022 (0.334)
(5) $\Delta LASSET$	0.030 (0.178)	-0.120 (0.000)	0.130 (0.000)	0.141 (0.000)		0.110 (0.000)	0.125 (0.000)	-0.025 (0.265)	0.000 (0.985)	-0.037 (0.098)	-0.017 (0.460)	0.013 (0.550)	-0.014 (0.526)	-0.033 (0.138)	-0.092 (0.000)	0.002 (0.937)
(6) ΔBM	-0.013 (0.550)	0.103 (0.000)	-0.160 (0.000)	-0.032 (0.159)	0.045 (0.046)		-0.168 (0.000)	-0.098 (0.000)	-0.029 (0.199)	0.010 (0.641)	0.019 (0.406)	0.020 (0.368)	0.003 (0.877)	0.018 (0.435)	0.009 (0.689)	0.002 (0.924)
(7) ΔLEV	-0.012 (0.584)	0.065 (0.004)	-0.022 (0.333)	-0.012 (0.606)	0.102 (0.000)	-0.085 (0.000)		0.036 (0.110)	-0.002 (0.945)	0.066 (0.003)	-0.004 (0.850)	0.005 (0.831)	0.024 (0.292)	-0.079 (0.000)	-0.026 (0.250)	-0.015 (0.508)
(8) ΔGCO	0.023 (0.298)	0.013 (0.564)	-0.034 (0.134)	-0.033 (0.137)	-0.029 (0.195)	-0.036 (0.104)	0.015 (0.500)		0.002 (0.936)	0.075 (0.001)	-0.011 (0.633)	0.007 (0.753)	-0.002 (0.946)	-0.001 (0.973)	0.036 (0.108)	-0.056 (0.012)
(9) $\Delta RESTATE$	-0.012 (0.604)	-0.115 (0.000)	0.024 (0.291)	0.004 (0.858)	0.007 (0.769)	0.008 (0.734)	0.019 (0.396)	0.002 (0.930)		-0.007 (0.746)	-0.079 (0.000)	0.271 (0.000)	0.025 (0.256)	0.050 (0.026)	0.010 (0.642)	-0.022 (0.318)
(10) $\Delta LOSS$	-0.027 (0.232)	0.110 (0.000)	-0.093 (0.000)	-0.032 (0.150)	-0.044 (0.051)	-0.004 (0.869)	0.083 (0.000)	0.076 (0.001)	-0.007 (0.765)		-0.046 (0.040)	0.051 (0.023)	0.015 (0.516)	0.002 (0.947)	0.022 (0.320)	0.027 (0.230)
(11) $\Delta UNQUALIFIED$	0.052 (0.021)	-0.154 (0.000)	0.027 (0.227)	0.001 (0.967)	0.003 (0.910)	0.029 (0.194)	-0.023 (0.305)	-0.010 (0.644)	-0.075 (0.001)	-0.045 (0.046)		-0.080 (0.000)	-0.015 (0.490)	-0.035 (0.117)	-0.037 (0.098)	-0.015 (0.510)
(12) ΔICW	-0.006 (0.805)	-0.096 (0.000)	0.043 (0.055)	-0.026 (0.244)	-0.008 (0.726)	0.027 (0.236)	0.013 (0.551)	0.007 (0.745)	0.271 (0.000)	0.051 (0.022)	-0.077 (0.001)		-0.039 (0.082)	0.010 (0.651)	-0.015 (0.499)	0.018 (0.424)
(13) $\Delta NASRATIO$	-0.186 (0.000)	0.334 (0.000)	-0.059 (0.008)	-0.022 (0.320)	-0.038 (0.091)	-0.012 (0.583)	0.071 (0.002)	0.004 (0.873)	-0.053 (0.018)	0.036 (0.106)	-0.071 (0.002)	-0.093 (0.000)		-0.004 (0.853)	-0.003 (0.888)	0.027 (0.231)
(14) $\Delta DIRVOTES$	-0.019 (0.395)	-0.010 (0.649)	-0.043 (0.056)	0.032 (0.148)	0.004 (0.868)	-0.030 (0.175)	0.014 (0.522)	0.012 (0.601)	-0.009 (0.676)	0.022 (0.327)	-0.029 (0.200)	-0.003 (0.892)	0.025 (0.262)		0.009 (0.675)	0.009 (0.676)
(15) $LTENURE$	0.035 (0.117)	0.068 (0.000)	-0.087 (0.000)	-0.026 (0.252)	-0.074 (0.001)	0.001 (0.962)	-0.027 (0.231)	0.032 (0.154)	0.007 (0.761)	0.025 (0.265)	-0.031 (0.173)	-0.019 (0.395)	-0.042 (0.061)	-0.001 (0.969)		-0.274 (0.000)
(16) $NBIG4$	0.003 (0.902)	0.040 (0.075)	0.039 (0.085)	0.017 (0.459)	-0.014 (0.531)	-0.012 (0.591)	-0.013 (0.564)	-0.056 (0.012)	-0.022 (0.317)	0.027 (0.228)	-0.016 (0.470)	0.019 (0.393)	0.043 (0.054)	0.025 (0.258)	-0.227 (0.000)	

Notes: Spearman/Pearson correlations among the variables used in the auditor ratification tests are reported above/below the diagonal lines. The variables are defined in the appendix, with Δ being a one-year change indicator. The statistics are reported for observations for the year (365 days) before September 20, 2005 (the date of the first LLA disclosure) and the year after September 20, 2005. We hold the sample constant across the two periods. Two-tail p -values are reported in parentheses.

Table 4
Conditional association between the LLA disclosure and the change in auditor ratification rate

$$\begin{aligned} \Delta APP_{it} = & \alpha_1 AFTER_{it} + \alpha_2 \Delta IO_{it} + \alpha_3 \Delta LASSET_{it} + \alpha_4 \Delta BM_{it} + \alpha_5 \Delta LEV_{it} + \alpha_6 \Delta LACOVERAGE_{it} \\ & + \alpha_7 \Delta GCO_{it} + \alpha_8 \Delta RESTATE_{it} + \alpha_9 \Delta LOSS_{it} + \alpha_{10} \Delta UNQUALIFIED_{it} + \alpha_{11} \Delta ICW_{it} \\ & + \alpha_{12} \Delta NASRATIO_{it} + \alpha_{13} \Delta DIRVOTES_{it} + \alpha_{14} LTENURE_{it} + \alpha_{15} NBIG4_{it} \\ & + \alpha_{16} NBIG4_{it} \times AFTER_{it} + Firm\ Fixed\ Effects_{it} + \varepsilon_{it} \end{aligned}$$

	(1)	(2)
<i>AFTER</i>	-0.015 (-3.30)	-0.015 (-3.20)
<i>ΔIO</i>	0.000 (0.00)	0.000 (0.01)
<i>ΔLACOVERAGE</i>	0.010 (1.34)	0.011 (1.35)
<i>ΔLASSET</i>	0.008 (0.60)	0.008 (0.59)
<i>ΔBM</i>	0.014 (0.83)	0.014 (0.83)
<i>ΔLEV</i>	-0.056 (-1.76)	-0.056 (-1.77)
<i>ΔGCO</i>	0.063 (0.85)	0.063 (0.84)
<i>ΔRESTATE</i>	-0.003 (-0.51)	-0.003 (-0.50)
<i>ΔLOSS</i>	-0.013 (-1.76)	-0.013 (-1.76)
<i>ΔUNQUALIFIED</i>	0.006 (1.15)	0.006 (1.15)
<i>ΔICW</i>	-0.005 (-0.55)	-0.005 (-0.56)
<i>ΔNASRATIO</i>	-0.005 (-1.55)	-0.005 (-1.55)
<i>ΔDIRVOTES</i>	0.023 (2.00)	0.023 (2.00)
<i>LTENURE</i>	0.005 (0.33)	0.005 (0.33)
<i>NBIG4</i>	-0.027 (-0.87)	-0.023 (-0.64)
<i>NBIG4 × AFTER</i>		-0.005 (-0.23)
<i>Firm FE</i>	Yes	Yes
<i>Adjusted R²</i>	-0.240	-0.241
<i>N</i>	1,994	1,994

Notes: The variables are defined in the appendix, with Δ being a one-year change indicator. The observations are for the year (365 days) before September 20, 2005 (the date of the first LLA disclosure) and the year after September 20, 2005. We hold the sample constant across the two periods. *T*-values are reported in parentheses.

Table 5
Stock market reaction to the first LLA clause disclosure

	Average raw return (%)			Average abnormal return (%)		
	Sun Microsystems	US Market (ex Sun)	Difference	Sun Microsystems	US market (ex Sun)	Difference
September 20, 2005	-1.485	-0.541 (0.000)	-0.945 (0.000)	-1.363 (0.000)	-0.526 (0.000)	-0.836 (0.000)
September 21, 2005	-1.005	-1.013 (0.000)	0.008 (0.421)	-1.058 (0.000)	-1.175 (0.000)	0.116 (0.003)
Total	-2.490	-1.554 (0.000)	-0.936 (0.000)	-2.421 (0.000)	-1.701 (0.000)	-0.720 (0.000)

Notes: We compute a firm's return over a two-day window (0, 1) around the Sun Microsystems' disclosure of an LLA clause in its audit engagement letter on September 20, 2005. We compute the abnormal returns using the following pooled regression:

$$RET_{i,t} = \alpha_0 + \alpha_1 ADR_t + \alpha_2 Event_Day0_t + \alpha_3 Event_Day1_t + \alpha_4 Sun_i + \alpha_5 Event_Day0_t \times Sun_i + \alpha_6 Event_Day1_t \times Sun_i + Industry\ Fixed\ Effects_i + \varepsilon_{i,t}$$

where $RET_{i,t}$ is the return of firm i on day t ; ADR_t is the return of the ADR index on day t ; $Event_Day0$ is an indicator variable taking the value one for September 20, 2005 and zero otherwise; $Event_Day1$ is an indicator variable taking the value one for September 21, 2005 and zero otherwise; and Sun is an indicator variable taking the value one for Sun Microsystems and zero otherwise. The model is estimated over the six months ending on November 20, 2005 (or two months after the event date). The abnormal return on September 20 is $\alpha_2 + \alpha_5$ for Sun and α_2 for the US market (ex Sun). The abnormal return on September 21 is $\alpha_3 + \alpha_6$ for Sun and α_3 for the US market (ex Sun). Industry fixed effects are based on the two-digit SIC code classification. One-tailed p -values are reported in parentheses. We cluster the standard errors at the firm level to control for cross-sectional correlations.

Table 6
The effects of contaminating events on the cumulative abnormal returns (CAR) around Sun's LLA clause disclosure: Counterfactual evidence

Panel A: Market reaction to FOMC rate increases from May 3, 2005 to January 31, 2006

Announcement date	Average CAR (%)	Two-tail <i>p</i> -value
5/3/2005	0.126	0.024
6/30/2005	0.400	0.000
8/9/2005	-0.856	0.000
9/20/2005	-1.550	0.000
11/1/2005	-0.076	0.180
12/13/2005	-0.038	0.394
01/31/2006	0.260	0.000

Panel B: Returns for those firms that are most likely to benefit from short-term rate increases

Announcement date→	Pre-9/20/2005	9/20/2005	Post-9/20/2005
Average CAR (%)	0.223	-1.244	0.175
Two-tail <i>p</i> -value	0.554	0.002	0.404

Panel C: Returns for those firms that are most likely to benefit from hurricanes

Event date→	9/20/2005
Average CAR (%)	-1.850
Two-tail <i>p</i> -value	0.004

Notes: We compute a firm's return over a two-day window (0, 1) around the event date, using the following pooled regression:

$$RET_{i,t} = \alpha_0 + \alpha_1 ADR_t + \alpha_2 Event_Day0_t + \alpha_3 Event_Day1_t + Industry\ Fixed\ Effects_i + \varepsilon_{i,t}$$

where $RET_{i,t}$ is the return of firm i on day t ; and ADR_t is the return of the ADR index on day t . In Panels A and B, $Event_Day0$ is an indicator variable taking the value one for a given FOMC interest rate increase announcement date and zero otherwise and $Event_Day1$ is an indicator variable taking the value one for the trading day after the interest rate increase announcement date and zero otherwise. The model is estimated over the period starting on February 3, 2005 and ending on April 30, 2006. CAR for a given date is the sum of $\alpha_2 + \alpha_3$. Industry fixed effects are based on the two-digit SIC code classification. We cluster the standard errors at the firm level to control for cross-sectional correlations. In Panel B, the pre-9/20/2005 (post-9/20/2005) period covers the three FOMC rate hike announcements that immediately preceded (followed) the September 20, 2005 announcement. A firm is deemed to generally benefit from short-term rate increases if it is in one

of the following industries: Insurance agents, brokerage, and service; security brokerage and flotation; commodity contracts brokerage; and payroll processing. In Panel C, *Event_Day0* is an indicator variable taking the value one on September 20, 2005 and zero otherwise and *Event_Day1* is an indicator variable taking the value one on September 21, 2005 and zero otherwise. The model is estimated over the six months ending on November 20, 2005. A firm is deemed to generally benefit from hurricanes if it is in one of the following industries: Building materials, hardware, and mobile home dealers; pumps and pumping equipment; heavy construction other than building construction contractors; and construction special trade.

Table 7
Stock market reaction to the first LLA clause disclosure: EY vs. Non-EY clients

	Average raw return (%)			Average abnormal return (%)		
	EY clients (<i>N</i> = 1,182)	Others (<i>N</i> = 4,292)	Difference	EY clients (<i>N</i> = 1,182)	Others (<i>N</i> = 4,292)	Difference
September 20, 2005	-0.610	-0.521	-0.090 (0.269)	-0.579	-0.511	-0.068 (0.405)
September 21, 2005	-1.213	-0.959	-0.254 (0.002)	-1.384	-1.117	-0.267 (0.001)
Total	-1.823	-1.479	-0.344 (0.002)	-1.962	-1.627	-0.335 (0.003)

Notes: We compute a firm's return over a two-day window (0, 1) around the Sun Microsystems' disclosure of an LLA clause in its audit engagement letter on September 20, 2005. We compute the abnormal returns using the following pooled regression:

$$RET_{i,t} = \alpha_0 + \alpha_1 ADR_t + \alpha_2 Event_Day0_t + \alpha_3 Event_Day1_t + \alpha_4 EY_i + \alpha_5 Event_Day0_t \times EY_i + \alpha_6 Event_Day1_t \times EY_i + Industry\ Fixed\ Effects_i + \varepsilon_{i,t}$$

where $RET_{i,t}$ is the return of firm i on day t ; ADR_t is the return of the ADR index on day t ; $Event_Day0$ is an indicator variable taking the value one for September 20, 2005 and zero otherwise; $Event_Day1$ is an indicator variable taking the value one for September 21, 2005 and zero otherwise; and EY is an indicator variable taking the value one for the EY clients and zero otherwise. The model is estimated over the six months ending on November 20, 2005 (or two months after the event date). The abnormal return on September 20 is $\alpha_2 + \alpha_5$ for the EY clients and α_2 for the non-EY clients. The abnormal return on September 21 is $\alpha_3 + \alpha_6$ for the EY clients and α_3 for the non-EY clients. Industry fixed effects are based on the two-digit SIC code classification. One-tailed p -values are reported in parentheses. We cluster the standard errors at the firm level to control for cross-sectional correlations.

Table 8
Stock market reaction to the first LLA clause disclosure: Impact of institutional ownership

	Average raw return (%)			Average abnormal return (%)		
	High IO (N=1,095)	Others (N=4,379)	Difference	High IO (N=1,095)	Others (N=4,379)	Difference
September 20, 2005	-1.008	-0.423	-0.585 (0.000)	-0.960	-0.417	-0.543 (0.000)
September 21, 2005	-1.616	-0.863	-0.753 (0.000)	-1.785	-1.022	-0.764 (0.000)
Total	-2.624	-1.286	-1.338 (0.000)	-2.745	-1.438	-1.307 (0.000)

Notes: We compute a firm's return over a two-day window (0, 1) around the Sun Microsystems' disclosure of an LLA clause in its audit engagement letter on September 20, 2005. We compute the abnormal returns using the following pooled regression:

$$RET_{i,t} = \alpha_0 + \alpha_1 ADR_t + \alpha_2 Event_Day0_t + \alpha_3 Event_Day1_t + \alpha_4 High_IO_i + \alpha_5 Event_Day0_t \times High_IO_i + \alpha_6 Event_Day1_t \times High_IO_i + Industry\ Fixed\ Effects_i + \varepsilon_{i,t}$$

where $RET_{i,t}$ is the return of firm i on day t ; ADR_t is the return of the ADR index on day t ; $Event_Day0$ is an indicator variable taking the value one for September 20, 2005 and zero otherwise; $Event_Day1$ is an indicator variable taking the value one for September 21, 2005 and zero otherwise; and $High_IO$ is an indicator variable taking the value one if a firm's proportion of institutional ownership at the beginning of the year is in the top quintile, and zero otherwise. The model is estimated over the six months ending on November 20, 2005 (or two months after the event date). The abnormal return on September 20 is $\alpha_2 + \alpha_5$ for the High_IO group and α_2 for the other firms. The abnormal return on September 21 is $\alpha_3 + \alpha_6$ for the High_IO group and α_3 for the other firms. Industry fixed effects are based on the two-digit SIC code classification. One-tailed p -values are reported in parentheses. We cluster the standard errors at the firm level to control for cross-sectional correlations.

Table 9
Average stock market reaction to the November 28, 2005 WSJ article

	Raw return (%)	Abnormal return (%)
US Market	-0.956 (0.000)	-0.835 (0.000)
Sun Microsystems	0.513	0.501 (0.000)

Notes: We compute a firm's return on the day of the first WSJ publication on the issue of LLA clauses in audit engagement letters. We compute abnormal returns using the following regression: $RET_{i,t} = \alpha_0 + \alpha_1 ADR_t + \alpha_2 Event_Day_t + \alpha_3 Sun_i + \alpha_4 Event_Day_t \times Sun_i + Industry\ Fixed\ Effects_i + \varepsilon_{i,t}$, where $RET_{i,t}$ is the return of firm i on day t ; ADR_t is the return of the ADR index on day t ; $Event_Day$ is an indicator variable taking the value one for November 28, 2005 and zero otherwise. Industry fixed effects are based on the two-digit SIC code classification. The model is estimated over the six months starting September 28, 2005 (or two months before the event date). The model is estimated as a pooled regression, with the standard errors clustered at the firm level to control for cross-sectional correlations.

Table 10
Simple correlations between the variables used in the return analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) <i>ABRET_NOV</i>		0.223 (0.000)	-0.109 (0.000)	-0.073 (0.013)	-0.012 (0.671)	-0.020 (0.497)	-0.165 (0.000)	-0.046 (0.111)	-0.105 (0.000)	-0.055 (0.058)	0.070 (0.016)	0.016 (0.594)
(2) <i>LogSize</i>	0.162 (0.000)		-0.111 (0.000)	-0.302 (0.000)	-0.209 (0.000)	0.005 (0.866)	-0.210 (0.000)	0.004 (0.887)	-0.026 (0.374)	0.358 (0.000)	0.093 (0.001)	0.014 (0.632)
(3) <i>High_IO</i>	-0.086 (0.003)	-0.137 (0.000)		-0.010 (0.739)	0.001 (0.974)	0.047 (0.108)	0.078 (0.007)	-0.005 (0.871)	0.068 (0.020)	0.096 (0.001)	0.061 (0.036)	0.018 (0.538)
(4) <i>BM</i>	-0.042 (0.151)	-0.297 (0.000)	-0.014 (0.627)		0.063 (0.030)	-0.002 (0.957)	-0.134 (0.000)	-0.131 (0.000)	0.063 (0.029)	-0.259 (0.000)	-0.018 (0.537)	0.015 (0.604)
(5) <i>NBIG4</i>	0.019 (0.520)	-0.203 (0.000)	0.001 (0.974)	0.073 (0.013)		-0.135 (0.000)	0.063 (0.030)	-0.033 (0.250)	-0.035 (0.229)	-0.070 (0.016)	-0.069 (0.018)	-0.001 (0.974)
(6) <i>EY</i>	-0.006 (0.836)	0.003 (0.909)	0.047 (0.108)	0.013 (0.654)	-0.135 (0.000)		0.046 (0.114)	-0.006 (0.849)	0.006 (0.846)	0.024 (0.406)	-0.049 (0.090)	-0.070 (0.016)
(7) <i>PoorQuality</i>	-0.122 (0.000)	-0.201 (0.000)	0.083 (0.004)	-0.120 (0.000)	0.066 (0.024)	0.046 (0.113)		0.125 (0.000)	-0.011 (0.707)	-0.030 (0.311)	-0.055 (0.059)	0.042 (0.154)
(8) <i>JustMeet</i>	-0.062 (0.034)	0.015 (0.595)	-0.005 (0.871)	-0.113 (0.000)	-0.033 (0.250)	-0.006 (0.849)	0.129 (0.000)		-0.007 (0.817)	0.074 (0.011)	-0.061 (0.037)	-0.059 (0.043)
(9) <i>StockIssued</i>	-0.119 (0.000)	-0.055 (0.057)	0.067 (0.022)	0.041 (0.158)	-0.034 (0.238)	0.006 (0.831)	-0.006 (0.836)	-0.003 (0.905)		0.141 (0.000)	-0.057 (0.050)	0.011 (0.699)
(10) <i>NetInsiderSelling</i>	-0.048 (0.100)	0.342 (0.000)	0.096 (0.001)	-0.243 (0.000)	-0.070 (0.016)	0.024 (0.406)	-0.030 (0.304)	0.074 (0.011)	0.141 (0.000)		-0.051 (0.081)	0.005 (0.870)
(11) <i>BoardInd_Super</i>	0.070 (0.016)	0.091 (0.002)	0.061 (0.036)	-0.009 (0.747)	-0.069 (0.018)	-0.049 (0.090)	-0.052 (0.073)	-0.061 (0.037)	-0.060 (0.040)	-0.051 (0.081)		0.191 (0.000)
(12) <i>BoardInd_Simple</i>	0.010 (0.724)	0.021 (0.465)	0.018 (0.538)	0.006 (0.839)	-0.001 (0.974)	-0.070 (0.016)	0.043 (0.140)	-0.059 (0.043)	0.011 (0.708)	0.005 (0.870)	0.191 (0.000)	

Notes: Spearman/Pearson correlations are reported above/below the diagonal lines. We compute abnormal returns by estimating the following regression for each firm: $RET_t = \alpha_0 + \alpha_1 ADR_t + \alpha_2 Event_Day_t + Industry\ Fixed\ Effects_i + \varepsilon_t$, where RET_t is the firm's return on day t ; ADR_t is the return of the ADR index on day t ; $Event_Day$ is an indicator variable taking the value one for November 28, 2005 and zero otherwise. The model is estimated over the six months starting September 28, 2005 (or two months before the November 28, 2005 event date). *LogSize* is the logarithm of the firm's market value of equity (*SIZE*) at the end of the year prior to the event date. *High_IO* is a binary variable taking the value one if the proportion of institutional ownership in the firm at the beginning of the year is in the top quintile, and zero otherwise. *BM* is the firm's book-to-market value of equity at the end of the year prior to the event date. *NBIG4* is a binary variable taking the value one if the firm is audited by a non-Big 4 audit firm and zero otherwise. *EY* is a binary variable taking the value one if the firm is audited by EY and zero otherwise. *PoorQuality* is a binary variable taking the value -0.5 if the absolute value of a firm's average performance adjusted abnormal accruals is in the bottom quintile over the last five years, 0.5 if it is in the top quintile, and zero otherwise. *JustMeet* is a binary variable taking the value one if actual earnings meet or beat the average analyst forecast by two cents or less at least half of the time over the four quarters prior to the event date and zero otherwise. *StockIssued* takes the value one if the client's stock issuance (Compustat data item: SSTK) scaled by market value over the year prior to the WSJ publication is in the top quintile, and zero otherwise. *NetInsiderSelling* takes the value one if the market value of net insider selling at a client over the year prior to the WSJ publication is in the top quintile, and zero otherwise. *BoardInd_Super*

is a binary variable taking the value one if the firm's external board members make up more than 80 percent of the board over the year prior to the event date and zero otherwise. *BoardInd_Simple* is a binary variable taking the value one if the firm's external board members make up more than 50 percent of the board over the year prior to the event date and zero otherwise. The industry fixed effects are based on two-digit SIC codes. All the independent variables are measured at the end of, or over, the year prior to the event date, November 28, 2005. We create the binary variables by sorting all the available observations in a respective dataset before we merge the datasets to create the final sample.

Table 11
Cross-sectional variations in the market reaction to the November 28, 2005 WSJ article:
Multivariate analysis

$$\begin{aligned}
 ABRET_NOV_i = & \alpha_1 LogSize_i + \alpha_2 High_IO_i + \alpha_3 BM_i + \alpha_4 NBIG4_i + \alpha_5 EY_i + \alpha_6 PoorQuality_i \\
 & + \alpha_7 JustMeet_i + \alpha_8 StockIssued_i + \alpha_9 NetInsiderSelling_i + \alpha_{10} BoardInd_Super_i \\
 & + \alpha_{11} BoardInd_Simple_i + Industry\ Fixed\ Effects_i + \varepsilon_i
 \end{aligned}$$

	(1)	(2)
<i>LogSize</i>	0.258 (6.70)	0.259 (6.69)
<i>High_IO</i>	-0.202 (-2.02)	-0.201 (-2.01)
<i>BM</i>	0.166 (0.77)	0.167 (0.77)
<i>NBIG4</i>	0.496 (1.65)	0.496 (1.65)
<i>EY</i>	0.005 (0.05)	0.003 (0.03)
<i>PoorQuality</i>	-0.412 (-2.20)	-0.409 (-2.19)
<i>JustMeet</i>	-0.328 (-3.15)	-0.330 (-3.16)
<i>StockIssued</i>	-0.452 (-3.87)	-0.452 (-3.86)
<i>NetInsiderSelling</i>	-0.202 (-2.04)	-0.202 (-2.04)
<i>BoardInd_super</i>	0.212 (2.20)	0.217 (2.26)
<i>BoardInd_simple</i>	0.062 (0.28)	-
<i>Industry FE</i>	Yes	Yes
<i>Adjusted R²</i>	0.203	0.203
<i>N</i>		1,181

Notes: We compute abnormal returns by estimating the following regression for each firm: $RET_t = \alpha_0 + \alpha_1 ADR_t + \alpha_2 Event_Day_t + Industry\ Fixed\ Effects_i + \varepsilon_t$, where RET_t is the firm's return on day t ; ADR_t is the return of the ADR index on day t ; $Event_Day$ is an indicator variable taking the value one for November 28, 2005 and zero otherwise. The model is estimated over the six months starting September 28, 2005 (or two months before the November 28, 2005 event date). *LogSize* is the logarithm of the firm's market value of equity (*SIZE*) at the end of the year prior to the event date. *High_IO* is a binary variable taking the value one if the proportion of institutional ownership in the firm at the beginning of the year is in the top quintile, and zero otherwise. *BM* is the firm's book-to-market value of equity

at the end of the year prior to the event date. *NBIG4* is a binary variable taking the value one if the firm is audited by a non-Big four audit firm and zero otherwise. *EY* is a binary variable taking the value one if the firm is audited by EY and zero otherwise. *PoorQuality* is a binary variable taking the value -0.5 if the absolute value of a firm's average performance adjusted abnormal accruals is in the bottom quintile over the last five years, 0.5 if it is in the top quintile, and zero otherwise. *JustMeet* is a binary variable taking the value one if actual earnings meet or beat the average analyst forecast by two cents or less at least half of the time over the four quarters prior to the event date and zero otherwise. *StockIssued* takes the value one if the client's stock issuance (Compustat data item: SSTK) scaled by market value over the year prior to the WSJ publication is in the top quintile, and zero otherwise. *NetInsiderSelling* takes the value one if the market value of net insider selling at a client over the year prior to the WSJ publication is in the top quintile, and zero otherwise. *BoardInd_Super* is a binary variable taking the value one if the firm's external board members make up more than 80 percent of the board over the year prior to the event date and zero otherwise. *BoardInd_Simple* is a binary variable taking the value one if the firm's external board members make up more than 50 percent of the board over the year prior to the event date and zero otherwise. The industry fixed effects are based on two-digit SIC codes. All the independent variables are measured at the end of, or over, the year prior to the event date, November 28, 2005. We create the binary variables by sorting all the available observations in a respective dataset before we merge the datasets to create the final sample. We use White's (1980) heteroskedastic consistent standard errors to compute the *t*-values.

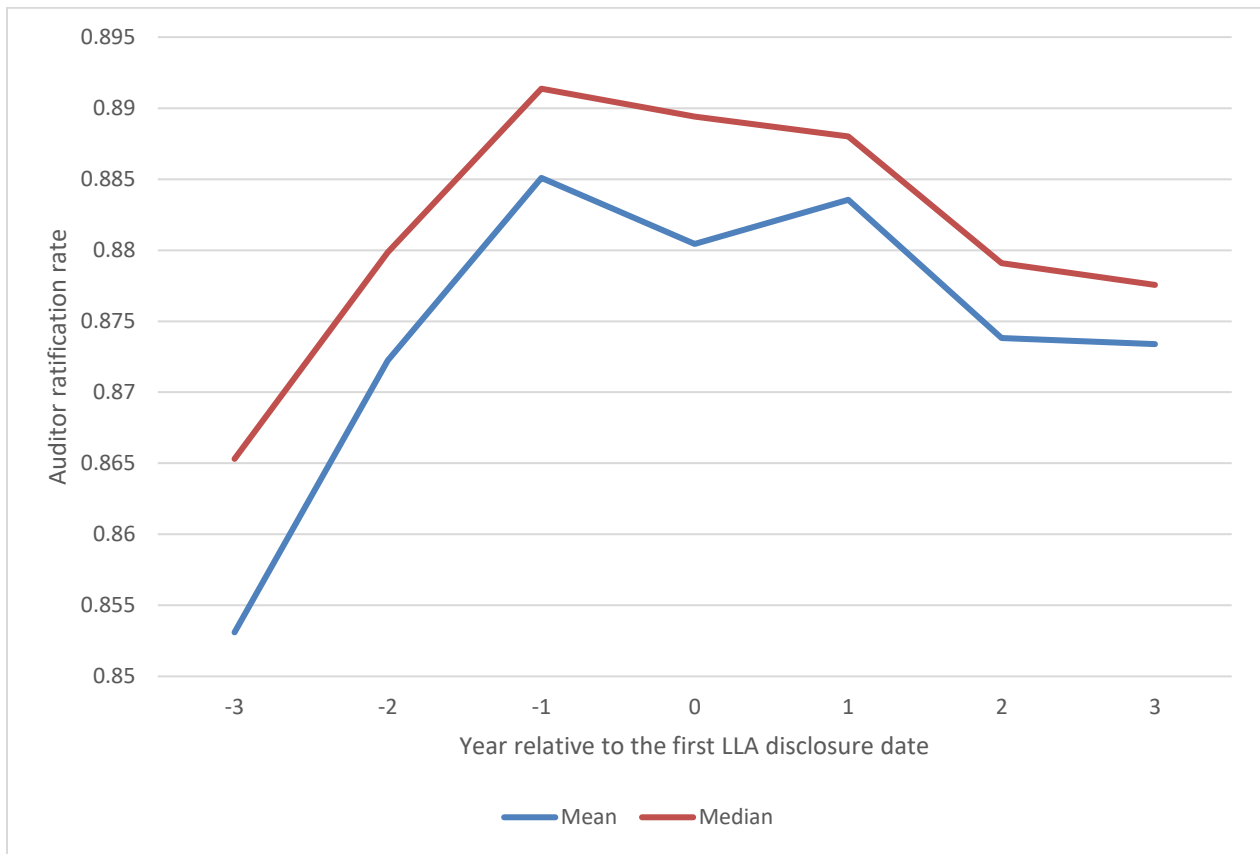


Figure 1: Time-series pattern of auditor ratification rate. Year 0 is the year after the September 20, 2005 disclosure by Sun Microsystems of an LLA clause in its audit engagement letter.