COMPONENT AUDITORS AND LENDERS' PERCEPTION OF AUDIT QUALITY

Abstract

While non-U.S. auditors audit a significant proportion of U.S.-based clients, until recently, lenders were largely unaware of the involvement of component auditors since the U.S.-based lead auditor was not required to disclose information about participating auditors. Using the disclosure under Form AP mandated by the PCAOB, we find that the increase in cost of debt ranges from 15 basis points to 22 basis points when component auditors are used relative to engagements that do not involve component auditors. We also find that cost of debt is greater when the component auditor has GAAP-related audit deficiencies and fewer CPAs, face PCAOB disciplinary orders or more frequent inspection, and when the lead auditor and the component auditors are not from the same Big 4 audit networks. These findings are consistent with the notion that lenders associate lower audit quality and higher information risk with certain attributes of component auditors. Further, the component auditor's superior local knowledge mitigates cost of debt for firms with high foreign operations. We also conduct an event study and find an adverse bond market reaction around the first-time disclosure of Form AP.

Keywords: *component auditor; Form AP; cost of debt; audit quality;*

1. Introduction

The prevalent practice of using non-U.S. auditors in multinational group audits has received attention from the PCAOB as well as in academic research (see below). The "component auditors" audit on average, between 33 percent and 50 percent of the total assets and total revenues of audits inspected by the PCAOB and additionally, about 80 percent of the *Fortune 500* issuer audits performed by U.S. global network audit firms used component auditors (PCAOB 2016a).[1] Motivated by concerns about the quality of audits that involve component auditors, in 2015 the PCAOB adopted and in 2016 the SEC mandated Form AP calling for disclosure of information on component auditor participation for audit reports issued on or after June 30, 2017 (PCAOB 2015b; SEC 2016).[2] The PCAOB (2016a, 37) states that the disclosure "can increase the efficiency of capital allocation decisions and decrease the cost of capital." While the response from investor groups was supportive of disclosure on component auditors, others expressed concern that such disclosures are not useful, could cause confusion about the degree of responsibility for the audit (between the lead auditor and the component auditor), and could contribute to information overload (PCAOB 2015b, 17).[3]

We contribute to the growing literature on the implications of using component auditors by providing empirical evidence on how lenders perceive the use of component auditors on audit quality.[4] Specifically, we examine the relation between the use of component auditors and cost of debt (bank loan spread). Further, we examine how the various attributes of the component auditor and the lead auditor

[1] We employ the terms "lead auditor (s)" and "component auditor(s)" (or "other auditor(s)") used by the PCAOB in Release 2016-002 (Appendix A) (PCAOB 2016a). The lead auditor is "the registered public accounting firm issuing the auditor's report on the company's financial statements." Other auditors (or component auditors) are audit firms or independent auditors that participate in the audit but that do not issue the audit report.

[2] Before Form AP, audit firms who do not serve as a lead auditor on an SEC issuer, had to disclose in Form 2 if they performed a "substantial role" (defined as 20 percent or more of total hours or total fees) in an audit for the principal auditor.

[3] For example, Grant Thornton (2012) states, "Promoting a marketplace whereby the level of assurance provided by an audit report is determined based on limited knowledge of the use of other audit participants does not seem to be in the best interests of the marketplace."

[4] While there is prior research on the effect of audit quality on cost of debt, prior research implicitly assumes that the lead auditor performed the entire audit since information about component auditors, including their identity and the extent of their participation in the audit was not mandated prior to Form AP for lead auditors on an SEC issuer.

moderate the relation between cost of debt and the use of a component auditor. We also conduct an event study to examine the bond market reaction around the first-time disclosure of Form AP.

Our study is important for several reasons. First, although the ultimate users of audited financial statements are investors and creditors and the PCAOB's assertion that information about component auditors in Form AP enhances transparency, we are not aware of any prior research that examines whether information about the component auditor in Form AP is useful to lenders. We fill this void by examining the effect of component auditor use on bank loan pricing as well as the bond market reaction to Form AP disclosure. Second, we focus on lenders because the debt market is a key provider of external funding for firms and financial statements are an important source of information to the debt market participants. Bharath et al. (2008) state that the quality of accounting information influences the lenders' assessment of future cash flows that are used to service the debt.[5] Also, Ball et al. (2008) provide evidence that debt markets rather than equity markets shape the properties of financial reporting, underscoring the importance of audited financial statements to debt market participants. Third, prior research on the usefulness of information on component auditors to equity investors is mixed.[6] Thus, additional research, especially focusing on lenders is warranted.

Prior research shows that lenders demand a premium for information-related risk driven by imperfect accounting reports and this is in addition to default risk (Duffie and Lando 2001). Prior research also finds that auditing mitigates cost of debt, consistent with the notion that auditors mitigate information risk in financial statements (Blackwell et al. 1998; Fortin and Pittman 2004; Mansi et al. 2004; Li et al. 2010; Minnis 2011; Causholli and Knechel 2012). Before Form AP, lenders might be unaware of the involvement of component auditors in a group audit since the lead auditor was not required to disclose

[5] Nandy and Shao (2010) report that the syndicated loan market in the U.S. has grown to about $1,700 billion in 2006. Similarly, the outstanding principal in U.S. corporate bonds at the end of 2006 was $5,370 billion (Bessembinder and Maxwell 2008). Graham et al. (2008) note that the over the past decade, net debt security issuances amounted to $780 billion compared to only $2 billion for equities.

[6] While Dee et al. (2015) find a negative market reaction and lower earnings response coefficients for firms disclosing the use of component auditors in their audits, Doxey et al. (2019) find no significant trading volume reaction to the presence or level of participation by the component auditor.

information about participating auditors. Disclosure under Form AP provides lenders with new information to better assess the audit quality when other auditors are involved. If lenders perceive the involvement of the component auditor enhances (exacerbates) the overall audit quality, suggesting lower (higher) information risk, then lenders are likely to demand a lower (higher) risk premium.

Concurrent research identifies both positive and negative implications of using a component auditor for audit quality. On the positive side, the component auditor can provide the necessary knowledge, especially about local tax, other legal regulations, business customs and norms, overcome language barriers in gathering evidence, and enable the lead auditor to assemble a global engagement team to conduct an effective audit (PCAOB 2016a; Sunderland and Trompeter 2017; Docimo et al. 2020). Further, prior research finds that geographic proximity to the client lowers information asymmetry and enhances auditor monitoring (Choi et al. 2012; Francis et al. 2018). Thus, use of a component (local) auditor can enhance audit quality, especially for clients with high foreign operations.

On the other hand, the PCAOB (2016a) as well as prior research identify audit quality concerns with the use of a component auditor. Based on interviews with U.S.-based global group audit senior managers, Downey and Westermann (2019) find issues concerning both planning and performing group audits. They note that the work performed and/or documented by the component auditor is not sufficient or appropriate to meet the expectations of the PCAOB. Sunderland and Trompeter (2017) note that aside from the challenges of applying uniform audit processes in multinational group audits, differences in materiality and scoping can also impact audit quality. Consistent with the above concerns, Dee et al. (2018) find that audit quality is lower when component auditors are involved though there is no evidence that the percentage of the audit conducted by the component auditor influences audit quality. On the other hand, Burke et al. (2020) find that the mere use of component auditors does not impair audit quality. However, the extent of component auditor participation is associated with lower audit quality, longer audit delay, and higher audit fees. In light of the above discussion, we conjecture that use of component auditors is likely to impact audit

quality and hence information risk and cost of debt although *ex ante,* the exact nature of the relation between cost of debt and use of component auditors is unclear.[7]

To test how lenders perceive the net effect of the potential costs and benefits of using component auditors, we estimate a regression of the bank loan spread (the amount the borrower pays in basis points over LIBOR) on an indicator variable representing client-firms where the lead auditor uses a component auditor and controls. We control for several loan-specific characteristics, firm-specific characteristics, including geographic segments, foreign subsidiaries, default risk, operating risk, accrual quality, accounting complexity, and others. In all regressions, we include fixed effects for loan purpose, industry, and year. We collect data on loan characteristics from the *DealScan* database for loan facilities issued between July 2017 and June 2019 and related financial statement information from *Compustat*. We hand-collect information about the lead auditor and the component auditor from Form AP. Our final sample comprises of 721 observations for 422 firms.

Consistent with prior research (Burke et al. 2020), we find that the use of component auditors is positively associated with the Big 4 auditors serving as lead auditors, presence of geographic segments and foreign subsidiaries, accounting reporting complexity and negatively associated with firm age, extreme growth, and the presence of U.S.-based subsidiaries. Next, we document several key findings. First, we find that on average, the spread on bank loans is positively associated with the use of a component auditor. Our findings are robust to using a propensity score matched sample as well as a difference-in-difference analysis. Second, we find that cost of debt is significantly associated with several attributes of component auditors. Specifically, cost of debt is greater when component auditors have GAAP-related audit deficiencies and fewer CPAs, face PCAOB disciplinary orders or more frequent inspection, and when the lead auditor and the component auditors are not from the same Big 4 audit networks. Third, for companies with low level of foreign operations, cost of debt is increasing in the level of component auditor participation. However, this positive association is largely mitigated for companies with high level of foreign operations, suggesting

[7] Note that cost of debt is likely to be driven by both the actual impact of component auditor on audit quality as well as lender perceptions of potential differences in audit quality between the lead auditor and the component auditor.

that the use of component auditors is less costly (more beneficial) for firms with high level of foreign operations. Fourth, the abnormal bond return is more negative around the first-time Form AP disclosure relative to firms in the control group.

We make several contributions to the growing literature on the implications of using component auditors. First, to the best of our knowledge, we are the first study to provide empirical evidence that information about component auditors in Form AP is useful to debt market participants. This is a timely issue since the PCAOB (2016a, 30), "… is particularly interested in studies or data that could be used to assess potential benefits and costs" of the information in Form AP. We find that the increase in spread ranges from about 15 basis points (bp) to 22 basis points (bp) when component auditors are used relative to engagements that do not involve component auditors, indicating lenders charge a premium for clients whose audits involve component auditors. Second, we also provide evidence on specific attributes of component auditors that moderate the relation between cost of debt and the use of component auditors. Our results suggest that lenders not only care who did the audit but also about several attributes of component auditors. These findings support the PCAOB's decision to require disclosure of certain attributes of the component auditor in Form AP. Third, we find that lenders do not demand a risk premium for the use of component auditors if the client has high level of foreign operations. This is consistent with the notion that component auditor's superior local knowledge benefits lead auditors who may lack knowledge about local laws and business customs.

The next section discusses institutional background on component auditors. Section 3 summarizes related research and develops our hypotheses. Section 4 describes the research design and the empirical models. Section 5 describes our sample followed by the results and Section 6 concludes.

2. Institutional background

Using the work of component auditors is common among the audits of multinational companies which typically operate in multiple countries or regions. Lead auditors typically use component auditors who are closer to the location of client's operations as "an effective and cost-efficient way to audit today's

multinational corporations" (PCAOB 2013, 18) or because local laws often require lead auditors to involve a locally licensed auditor in audits of clients' foreign subsidiaries (Carson 2009).

The work performed by component auditors can account for a significant part of the whole group audit. According to the PCAOB oversight data, in audits selected by the PCAOB for inspection that involve component auditors, the component auditors audit between one-third and one-half of the total assets and total revenues of the company being audited (PCAOB 2016a, 7). Therefore, the quality of the group audit to some extent depends on the competency and integrity of the component auditors. The PCAOB and the SEC oversight of the work performed by component auditors revealed several deficiencies in group audits involving component auditors and the PCAOB issued several alerts related to the usage of component auditors (PCAOB 2010). The deficiencies related to component auditors include, for example, "noncompliance with the lead auditor's instructions and failure to communicate significant findings or issues to the lead auditor. In addition, deficiencies were identified in other auditors' compliance with other PCAOB standards governing a variety of audit procedures, including in critical audit areas that are usually selected for inspection, such as revenue, accounts receivable, internal control over financial reporting, and accounting estimates including fair value measurements". (PCAOB 2016a, 28).

Deficiencies also exist among lead auditors, who did not appropriately determine the sufficiency of their participation and should not serve as the lead auditor according to existing PCAOB standards or they failed to evaluate the qualifications of component auditors' employees who participated in the audit (PCAOB 2016a, 28-29). For example, a U.S.-based auditor used a significant amount of work performed by a Hong Kong firm without adequately coordinating its work with that of the Hong Kong firm and later was sanctioned by the PCAOB (PCAOB 2009b). Before the Form AP disclosure requirements, investors rarely knew who actually conducted the audit and they want more information regarding the engagement partners and other audit participants involved in the audits. The PCAOB believes that information about the other audit participants would be useful for investors in their decision making such as auditor ratification and capital allocation. It will incentivize lead auditors to use higher-quality component auditors and enhance their supervision and risk management practices. It will also provide component auditors with incentives

to improve the quality of their audit work so that they can keep receiving referred audit work (PCAOB 2015a, 52 and 53).

To improve the transparency of audits, in 2011 the PCAOB proposed disclosure of other independent public accounting firms[8] and other persons involved in the group audit (PCAOB 2011a). In 2013, the PCAOB further proposed to disclose in the auditor's report the names, locations, and extent of participation of other independent public accounting firms that took part in the audit and the locations and extent of participation of other persons not employed by the auditor that took part in the audit. In 2015, the PCAOB solicited additional comments on disclosure of other audit participants on a new PCAOB form (i.e., Form AP). On December 15 of 2015, the PCAOB adopted the new rules requiring the disclosure of the information about other accounting firms (component auditors) on the PCAOB Form AP, effective for audit reports issued on or after June 30, 2017.

During this regulatory process, the PCAOB received comments from the public (mainly investor groups and accounting firms). Investors consistently stressed the importance and value to them of increased transparency and accountability if engagement partners and component auditors in the audit are disclosed.[9] The PCAOB notes that such disclosure could enable investors and other financial statement users to better evaluate the quality of audits and thus reduce the degree of information asymmetry (PCAOB 2015b, 44). The PCAOB states, "If investors are able to identify certain engagement partners and other accounting firms that participated in the audit who consistently perform high-quality audit work, the companies audited by these engagement partners and other accounting firms should benefit from a lower cost of capital relative to those companies whose auditor's performance record suggests a higher risk" (PCAOB 2015b, 44).

[8] Since our study focuses on the disclosure of other accounting firms involved in group audits, our discussion about the regulatory initiatives center around such disclosure and the regulatory initiatives related to the disclosure of engagement partners started as early as 2009 (PCAOB 2009a).

[9] For example, in its comment letter to the PCAOB dated on March 17, 2014, American Federation of Labor and Congress of Industrial Organizations state that "the PCAOB's proposed amendments will benefit investors by making audits more transparent. Disclosure of engagement partners and the role of third parties who take part in audits will provide valuable information to those who rely on financial statements. For example, these disclosures will aid the development of an information clearinghouse listing any sanctions, suspensions and litigation against engagement partners or other third parties involved in conducting audits."

However, other commenters questioned the value of disclosures of other participants in the audit and expressed concern that such disclosure would not be useful or could be confusing (Grant Thornton 2012). We seek to provide empirical evidence on the lender perspective of use of component auditors.

3. Related research and hypotheses

Research on component auditors

Studies on group audits are rare especially before the Form AP disclosure requirement. Much of the prior literature focuses on whether use of component auditors impairs audit quality and the conclusions on this issue are far from consistent. In the U.S., before Form AP was required, researchers used Form 2[10] to identify group audits where lead auditors typically accept the responsibility for the work of component auditors who play substantial roles in a group audit (Dee et al. 2015; Adams and Zhou 2018; Mao et al. 2020) or use audit reports to identify group audits where lead auditors divide responsibility with component auditors (Lyubimov 2011; Krishnan and Li 2018; Mao et al. 2020) or proprietary data from the PCAOB (Downey and Bedard 2019). In Australia, public companies need to report audit fees paid to (1) the lead auditor, (2) to component auditors that are in the same network as the lead auditor, (3) to component auditors that are *not* in the same network as the lead auditor. Carson et al. (2019) use this setting to identify group audits using the work of other auditors. After the Form AP disclosure requirement became effective in 2017, a number of studies use Form AP to identify group audits (Burke et al. 2020; Dee et al. 2018).

In the pre-Form AP regime, researchers in general find that audit quality is lower for group audits relying on the work of other auditors. For example, Lyubimov (2011) document lower audit quality associated with divided audits relative to those non-divided audits (which may or may not use component auditors). Dee et al. (2015) find lower audit quality (measured by discretionary accruals) for clients disclosing for the first time as using component auditors from Form 2 filed with the PCAOB from 2010 to 2012, relative to those without such disclosure (representing clients who may or may not use component auditors). Downey and Bedard (2019) use the PCAOB proprietary data collected from the Big 6 audit firms

[10] Form 2 is an annual report filed by all U.S. registered accounting firms since 2010. https://pcaobus.org/Rules/Pages/Form_2.aspx

from 2012 to 2016 and document that audit quality (measured by total and reissuance restatements) is lower when the multinational group audits involve foreign auditors.

In the post-Form AP regime, although both Burke et al. (2020) and Dee et al. (2018) document higher fees associated with audits using component auditors, they reach different conclusions on whether audit quality differs between audits involving component auditors and those that do not. Dee et al. (2018) find lower audit quality (measured by discretionary accruals) with audits involving component auditors, while Burke et al. (2020) find little difference in audit quality (measured by discretionary accruals and restatements) between audits that involve and do not involve component auditors. Using subsidiary-level data, Docimo et al. (2020) find evidence consistent with component auditors providing higher audit quality.

A few other studies also examine group audits from other perspectives. Adams and Zhou (2018) identify group audits using Form 2 filings from 2010 to 2016 and document that the participation of component auditors is associated with greater internal information asymmetry (the difference between insider trading profits of top managers and divisional managers) and poorer internal capital allocation decisions. Mao et al. (2020) examine whether audit fees and audit quality differ if lead auditors accept responsibility for the work of other auditors using group audit information identified from Form 2 and audit reports. They document that even though lead auditors charge higher audit fees when they accept such responsibility, they do not provide a higher-quality audit, consistent with inspection findings from the PCAOB which finds that lead auditors do not always perform sufficient additional procedures as required by the auditing standards when using the work of component auditors and assuming that responsibility (PCAOB 2010, 2011b)[11]. Brumley et al. (2019) document that lower quality lead auditors are more likely to divide responsibility and the higher restatement rate among divided audits is attributable to the principal auditor rather than the referred-to component auditor in 90 percent of restated years. They also find that

[11] The audit standard AU 543 (paragraph .08) clearly states that division of responsibility in the audit report should not be viewed as a qualification of the report. The lead auditor may decide to divide responsibility when it is impractical to perform necessary audit procedures in order to assume responsibility. For example, the component is acquired by the lead auditor's client at the end of the fiscal year and audited by another auditor. Mao et al. (2020) also note that in those divided audits, the audit reports of those component auditors are typically included in the client's SEC filings and thus the component auditors may perceive higher litigation risks and be more accountable.

clients are no less likely to dismiss the lead auditor following a restatement when the lead auditor divide responsibility, nor do they identify differences in shareholder ratification of the auditor following restatements when auditors divide responsibility.

Other studies also explore how the characteristics of component auditors affect audit quality. Using information from Form AP, Burke et al. (2020) find several factors proxying for communication and coordination in group audits may affect the audit quality in group audits. However, Dee et al. (2018) document that audit quality is *not* affected by the characteristics of component auditors (affiliated with the lead Big 4 auditor; not registered with the PCAOB; inexperience with SEC clients of their own; or domiciled in a country that does not allow PCAOB inspections) except for the origin of the countries where the component auditors are located. Finally, only a handful of studies have examined investor perceptions of use of component auditors and the findings are mixed (Dee et al. 2015; Doxey et al. 2019). More importantly, prior research has not examined lender perceptions of use of component auditors in group audits.

Hypotheses

Prior research finds a positive relation between information-related risk and cost of debt (Francis et al. 2005; Bharath et al. 2008; and Graham et al. 2008). Further, lenders price information-related risk incremental to borrower's default risk (Duffie and Lando 2001). Prior research also finds that auditors enhance the credibility of financial statements, suggesting lower information risk, resulting in lower cost of debt for borrowers (Blackwell et al. 1998; Fortin and Pittman 2004; Mansi et al. 2004; Li et al. 2010; Causholli and Knechel 2012).

The disclosures about the involvement of component auditors is expected to influence lenders' perception of borrower's information risk for several reasons. The extent of participation by component auditors in a group audit can be significant. For example, Burke et al. (2020) note that component auditors audit about six trillion dollars of U.S. public company assets and component auditors participate in about 80 percent of the *Fortune 500* issuer audits performed by U.S. global network audit firms (PCAOB 2016a). The PCAOB and other regulators have expressed concerns about the quality of global group audits,

including instances of egregious audit failures (PCAOB 2016b and 2017a; IFIAR 2017).[12] Consistent with these concerns, concurrent research also finds that involvement of component auditors is associated with higher discretionary accruals or greater revenue management or a higher likelihood of a financial restatement, suggesting lower audit quality (e.g., Dee et al. 2018; Carson et al. 2019; Downey and Bedard 2019).

However, the use of component auditors could also potentially enhance audit quality. For instance, the component auditor can provide the necessary knowledge, especially about local tax, other legal regulations, business customs and norms, overcome language barriers in gathering evidence, all of which are likely to enhance audit effectiveness (PCAOB 2016a; Sunderland and Trompeter 2017; Docimo et al. 2020). In addition, a growing body of research in accounting and finance supports the notion that geographic proximity lowers the information asymmetry between economic agents by easing flow of information resulting in better monitoring (Malloy 2005; Agarwal and Hauswald 2010; Ayers et al. 2011; Kedia and Rajgopal 2011). Consistent with this view, prior research finds that local auditors provide higher-quality than non-local auditors (Choi et al. 2012; Lundstrom and Yore 2017; Francis et al. 2018; Beck et al. 2019). The above line of research suggests that local (non-U.S.-based) auditors are well-placed to provide a high-quality audit especially for those clients with significant foreign operations.

In summary, if lenders perceive the involvement of the component auditor enhances (exacerbates) the overall audit quality, suggesting lower (higher) information risk, then they are likely to demand a lower (higher) risk premium. In light of the above opposing views on the potential consequences of using component auditors on information risk, we propose the following pair of hypotheses to test the nature of the relation between the use of a component auditor and cost of debt.

Hypothesis 1a: *Cost of debt is higher for firms whose lead auditor uses a component auditor than firms whose lead auditor does not use a component auditor.*

Hypothesis 1b: *Cost of debt is lower for firms whose lead auditor uses a component auditor than firms whose lead auditor does not use a component auditor.*

[12] IFIAR (2017) finds that the rate of deficiencies identified in global group audits is comparable to those associated with accounting estimates, fair values, internal controls, and revenue recognition.

While hypotheses 1a and 1b test the relation between the use of a component auditor and cost of debt for the overall sample, we conjecture that specific attributes of the component auditor, which are associated with the quality of component auditors, could moderate the relation between the use of a component auditor and cost of debt. Specifically, we consider the following attributes: whether the component auditor has GAAP-related audit deficiency, whether the component auditor faces PCAOB disciplinary action or inspection, whether the component auditor and the lead auditor are from the same Big 4 network, and the number of CPAs employed by the component auditor. Information about these attributes of component auditors might be useful to lenders in evaluating the quality of audits performed by component auditors and could impact loan pricing (PCAOB, 2015b[13]; Dee et al., 2018; Burke et al., 2020). Thus, we state our second hypothesis as follows:

Hypothesis 2: *Attributes of the component auditor moderate the relation between the use of a component auditor and cost of debt.*

4. Research design

To test our hypotheses, we estimate the following regression models:

$$SPREAD = ß_0 + ß_1 COMPOAUDTR + ß_m LOAN\ CHARACTERISTICS + ß_n FIRM\ CHARACTERISTICS + LPURPOSE\ FE + INDUSTRY\ FE + YEAR\ FE + \varepsilon_t \quad (1)$$

The dependent variable, *SPREAD*, is the loan spread measured as the amount the borrower pays in basis points over LIBOR for each dollar drawn down (all-in Spread drawn from *DealScan* database). The variable of interest in model (1) is *COMPOAUDTR*, an indicator variable that equals 1 if the lead auditor uses at least one component auditor (disclosed in Form AP), and 0 if no component auditor is used by the lead auditor.

[13] PCAOB (2015a, 43-44) notes that additional data points should contribute to the mix of information that investors would be able to use, such as (1) the extent of the audit performed by the firm signing the auditor's report; (2) the extent of participation in the audit by other accounting firms in other jurisdictions, including jurisdictions in which the PCAOB cannot currently conduct inspections; (3) Whether the other accounting firms are registered with the PCAOB, have been inspected, and the inspection results, if any; (4) industry experience of the other accounting firms; (5) whether the other accounting firms belong to a global network; (6) trends and changes in the level of participation of other accounting firms in the audit work; (7) disciplinary proceedings and litigation involving the other accounting firms.

Consistent with prior literature (Kim et al. 2011; Vasvari 2008; Graham et al. 2008; Bharath et al. 2008), we control for several loan-specific characteristics that are associated with cost of borrowing. More specifically, we include in model (1) the size of the loan, *LOANSIZE*; loan maturity, *MATURITY*; performance pricing provision, *PERFORMPR*; the type of the loan, *LOANTYPE;* and the number of lenders in a loan deal, *NLENDERS*. *LOANSIZE* is calculated as the natural log of the dollar amount of each loan. *MATURITY* is the natural log of loan maturity in years. *PERFORMPR* is an indicator variable that equals 1 if the loan has performance pricing provisions, and 0 otherwise. *LOANTYPE* is an indicator variable that equals 1 if the loan is a revolving loan, and 0 otherwise. *NLENDERS* is equal to the number of lenders in a loan deal. We also control for a set of firm-specific characteristics that are known to have an impact on credit quality. All firm-specific characteristics are measured in the fiscal year before the loan issuance date. We include firm size (*SIZE)*, leverage (*LEVERAGE)*, market-to-book ratio (*MB)*, firms with extreme growth (*EXTRMGROW)*, *ROA*, proportion of tangible assets to total assets (*TANGIBILITY)*, Altman's *Z*-score (*ZSCORE*), and cash flow volatility (*CASHVOL*). We measure *SIZE* and *LEVERAGE* as the natural log of total assets and the ratio of total debt to total assets. *MB* is the market to book ratio, calculated as market value of equity divided by book value of equity. *EXTRMGROW* is an indicator variable that equals 1 if the firm's industry-adjusted sales growth falls in the top quintile, and 0 otherwise. *ROA* is the return on assets ratio. *TANGIBILITY* is the ratio of PP&E assets to total assets. To measure default risk, we use Altman's *Z*-score *ZSCORE*, which captures the likelihood of bankruptcy. To measure operating risk, we include *CASHVOL*, the standard deviation of quarterly cash flow from operations (scaled by total assets) over the prior five fiscal years. As firm complexity is positively correlated with both the use of component auditors and cost of debt, we include a number of complexity measures in our model: the number of business segments, *BSEGMENT*; the number of geographic segments, *GSEGMENT*; the ratio of receivables and inventory to total assets, *INVREC*; firm age, *AGE*; the number of U.S. subsidiaries, *USSUB*; the number of foreign subsidiaries, *FORGNSUB*; and the number of distinct monetary XBRL tags in Item 8 of the 10-K filings (*ARC*). To control for earnings quality, we include *ACCRUALS*, a measure of accruals quality developed by Dechow and Dichev (2002); *ICWEAK*, an indicator for internal control weakness under SOX

404 / SOX 302; *RESTATEMENT*, an indicator for accounting misstatements. Finally, we control for lead auditor quality using *BIG4*, an indicator variable that equals 1 if the firm's lead auditor is one of the Big 4 auditors, and 0 otherwise, and *AUDITDELAY*, the number of days between the fiscal year end date and the audit report date minus the SEC's filing deadline requirement. In all regressions, we include year and industry fixed effects and loan purpose indicators. We use two-way clustered standard error that control for both firm effect and time effect (Gow et al. 2010).

To address the concern that firms' decision to use component auditors is endogenous and could be associated with cost of debt, we use propensity score matching method to construct a sample in which the treatment firms (i.e. firms with component auditors) and control firms (i.e. firms without component auditors) are matched on the probability of using component auditors. Following Burke et al. (2020), we use the following probit model to estimate the probability of using component auditors:[14]

$$\begin{aligned}\text{Prob}(COMPOAUDTR) = {} & ß_0 + ß_1 SIZE + ß_2 LEVERAGE + ß_3 ROA + ß_4 EXTRMGROW + ß_5 INVREC + \\ & ß_6 BIG4 + ß_7 AGE + ß_8 BSEGMENT + ß_9 GSEGMENT + ß_{10} USSUB + \\ & ß_{11} FORGNSUB + ß_{12} ARC + INDUSTRY\ FE + YEAR\ FE + \varepsilon_t \qquad (2)\end{aligned}$$

where *COMPOAUDTR* equals 1 if the firm's lead auditor used a component auditor and 0 otherwise. The definitions of other variables are in Appendix. We estimate model (2) on a sample of firms with fiscal year-end after June 30, 2017. We use the coefficients estimated by model (2) to calculate the probability that a firm will use a component auditor at each year. For each of the loan issuers with component auditors, we match it with a loan issuer without component auditors, and with the closest likelihood to use a component auditor.[15] Then, we re-estimate model (1) on the propensity score matched sample.

[14] We do not include foreign income in the probit model because many firms have missing values on foreign income and including foreign income would further reduce our sample size. We choose not to treat missing foreign income as zero foreign income because we find that many companies with missing foreign income still have positive foreign income tax. It suggests that the missing foreign income is less likely due to lack of foreign operation, but more likely due to lack of disclosure. Nevertheless, we conduct a robustness test adding foreign income to the model and obtain consistent results.

[15] We restrict that the likelihood to use component auditors between treatment firms and control firms must be less than 0.01.

5. Sample

Our initial sample consists of bank loan facilities issued between July 2017 and June 2019 from the Loan Pricing Corporation's *DealScan* database. Our sample period starts in July 2017 because PCAOB requires the disclosure of component auditors in Form AP for each public company audit report issued after June 30, 2017, and we make sure that the loan issuance date is after the filing date of the Form AP. The *DealScan* database is compiled using information from SEC filings and self-reported information from participating banks. It contains a wide range of loan characteristics, such as yield spread, amount, and maturity, for each loan transaction. A loan is referred to as a "facility". In the syndicated loan market, a number of facilities are structured and syndicated as one transaction (deal) with a borrower. Our analysis is performed at the individual facility level because several loan characteristics vary across facilities. We obtain firm level financial information from *Compustat.*

The information related to component auditors is from Form AP filed with the PCAOB. We download a dataset of 42,450 Form AP filings from the PCAOB website in September of 2019.[16] There were 5,146 filings relating to group audits where lead auditors use the work of at least one component auditor.[17] We identify 3,328 filings that disclosed detailed information on individual component auditors who contribute to more than 5 percent of the total audit hours. The other 1,818 fillings only disclose the total number of component auditors but do not disclose such detailed information about component auditors because the individual component auditor does not contribute to more than 5 percent of the total audit hours. We then use Python programming to extract the details of the component auditors for the 3,328 Form AP filings including the name and country locations of the component auditor, the percentage of audit hours participated, and whether the component auditor is registered with the PCAOB. We further collect information from Audit Analytics on whether the component auditor has ever been inspected by the PCAOB or has any PCAOB deficiency in its inspection reports. We also collect information on the number

[16] https://pcaobus.org/Pages/AuditorSearch.aspx
[17] Out of 5,146 Form AP filings, 5105 filings are related to non-divided audits and only 96 related to divided audits and the overlapped 55 Form AP filings have both divided and non-divided audits.

of CPAs employed by the component auditor from the PCAOB Form 2 and PCAOB disciplinary orders from the PCAOB website.[18]

Our initial sample consists of 3,219 loan facilities between July 2017 and June 2019. We exclude firms in the banking industry and require that all loan facilities in our sample have available information of component auditor use from Form AP before the loan issuance date, which results in a loss of 2,037 observations.[19] After eliminating observations not incorporated in the U.S. and observations with missing firm characteristics or loan characteristics, our final sample comprises 721 facility-years, among which 393 issuers used component auditors and 328 issuers did not use a component auditor. Table 1 Panel A presents the sample selection process. The distribution of loan facilities by year and loan type is provided in Panel B. The two major types of loans are revolver loans (53.81 percent) and term loans (40.64 percent).

[Insert Table 1 About Here]

6. Results

Univariate analysis

Descriptive statistics of the final sample used in our main analyses are presented in Table 2. Panel A reports the descriptive statistics of variables used to test our hypotheses (model 1). Results in Panel A indicate that the mean and median values of *SPREAD* are, 194.24 and 150 basis points respectively. For about 55 percent of the observations in our final sample, the lead auditors engage component auditors (*COMPOAUDTR*). The mean *MB* is about 4.59. The mean *ROA* is about 4.70 percent. About 8.90 percent of the observations reported a weakness in internal controls (*ICWEAK*) and nearly 4 percent of the observations have financial restatements (*RESTATEMENT*).

Panel B compares the characteristics of firms whose lead auditors engage component auditors and those who do not. Results in Panel B indicate that on average, firms using component auditors have more geographic segments and foreign subsidiaries, higher proportion of foreign income, higher proportion of total assets in accounts receivables and inventory, lower financial distress, and more likely to be audited by

[18] https://pcaobus.org/Enforcement/Decisions/Pages/default.aspx
[19] If there were multiple Form AP prior to the loan issuance date, we use the closest one.

the Big 4 auditors than firms not using component auditors (significant at the 0.05 level or higher). On the other hand, on average, firms using component auditors have lower leverage, tangible assets, accruals, growth, and shorter audit delays than firms not using component auditors (significant at the 0.05 level or higher). Panel C provides information on the location of component auditor headquarters in our sample.[20] The three countries with the largest number of component auditors are the U. K., Germany, and China.

[Insert Table 2 About Here]

Relation between cost of debt and component auditor use

Before testing the impact of component auditor use on cost of debt, we first examine the determinants of using component auditors by estimating model (2) on a sample of firms with fiscal year-end after June 30, 2017. Note for this test, we use a much larger sample than the one in Table 2, including firms without a bank loan. We report the descriptive statistics of the sample in Panel A of Table 3 and results of the logistic regression in Panel B. About 33 percent of firms in this sample engage a component auditor. The mean value of *ROA* is -0.311. About 61.7 percent of the observations are audited by the Big 4 auditors. The mean values of business and geographic segments are, respectively, 2.021 and 2.203. Results in Panel B indicate, consistent with Burke et al. (2020), that more complex firms, measured by *SIZE, GSEGMENT*, and *ARC*, firms audited by the Big 4 auditors, and with more foreign subsidiaries are more likely to use component auditors. We also find that component auditors are less likely to be used by firms with more U.S. subsidiaries, high growth firms, and older firms. Using the coefficients from model (2) we calculate the probability that a firm will use a component auditor each year. Next, we construct a sample by matching each firm that uses at least a component auditor with a firm not using any component auditor on likelihood of using a component auditor. This results in a matched sample with 237 treatment facilities and 237 control facilities.

[Insert Table 3 About Here]

[20] The identities and locations of the component auditors are required to be disclosed if and only if the component auditor individually contributes 5 percent or more to the total audit hours. In our sample, 270 facility-years' lead auditors use such component auditors whose identities and locations are disclosed. One lead auditor may use several component auditors so in total 370 component auditors are used for presentation in Panel C.

Results of model (1) on the relation between cost of debt and use of a component auditor are in Table 4. In column 1, fixed effects for industry, year, and loan purpose are not included while the specification in column 2 includes fixed effects. Column 3 presents the results on using the propensity score matched sample. The coefficients on *COMPOAUDTR* are positive and significant in all three columns, indicating that on average, cost of debt is higher by about 15 bp to 22 bp for firms that use component auditors than those that do not use a component auditor. Thus, hypothesis 1a is supported. These findings support the notion that lenders perceive the net effect of component auditor use on audit quality to be negative and thus exacerbates information risk. Results in column 3 indicate that the positive association between component auditor use and cost of debt continues to hold after controlling for the probability of using a component auditor. Turning to control variables, we find that *SPREAD* is positively associated with *MATURITY, LEVERAGE, GSEGMENT, CASHVOL, RESTATEMENT*, *AUDITDELAY, USSUB,* and *ARC* and negatively associated with *LOANSIZE, LOANTYPE, NLENDERS, INVREC, TANGIBILITY, AGE, BIG4,* and *FORGNSUB.*

[Insert Table 4 About Here]

Relation between cost of debt and component auditor attributes

Next, we examine what specific attributes of the component auditors moderate the relation between cost of debt and use of component auditors (hypothesis 2). These analyses are potentially important to the PCAOB, auditors, and others. We surmise that audit quality is expected to be higher when the component auditor and the lead auditor belong to the same Big 4 network, due to use of a similar high-quality audit methodology, similar culture, and better information sharing. We also expect audit quality to be lower when the component auditor has GAAP-related audit deficiencies, faces PCAOB disciplinary action or frequent inspections. More frequent inspections by the PCAOB suggests higher *ex ante* audit risk (consistent with the PCAOB's risk-based approach to identify inspections) and also elevates the likelihood of finding a deficiency than a component auditor who is inspected less frequently. Last, we expect that component auditors that employ more CPAs have greater competency and are able to deliver a high-quality audit than component auditors with fewer CPAs.

We reestimate model (1) with the following indicator variables to capture the above attributes. *GAAPDEF* (*NOGAAPDEF*) equals 1 if the component auditors have (do not have) GAAP-related audit deficiency, and 0 otherwise.[21] *PCAOBORDER* (*NOPCAOBORDER*) equals 1 if the component auditors face (do not face) PCAOB disciplinary action and 0 otherwise.[22] *BIG4NETWORK* (*OTHERNETWORK*) equals 1 if the component auditor and the lead auditor belong (do not belong) to the same Big 4 network (e.g., KPMG U.K. and KPMG U.S. are in the same Big 4 network), and 0 otherwise. *HIGHINSPECT* (*LOWINSPECT*) equals 1 if the component auditors' number of PCAOB inspections is above (below) the sample mean, and 0 otherwise. *MORECPA* (*LESSCPA*) equals 1 if the average CPA ratio of component auditors is larger (smaller) than the sample mean, and 0 otherwise.[23]

We expect that cost of debt will be *higher* when component auditors have GAAP-related audit deficiency (*GAAPDEF*), face PCAOB disciplinary action (*PCAOBORDER*), or are subject to more PCAOB inspections (*HIGHINSPECT*), and will be *lower* when component auditors are in the same Big 4 audit network with the lead auditor (*BIG4NETWORK*), or employ more CPAs (*MORECPA*). Our final sample used for these analyses consists of 598 facility-years, among which 270 issuers used component auditors whose detailed information is disclosed in Form AP and 328 issuers did not use a component auditor.[24] The results of the above analyses are in Table 5. Consistent with our expectations, we find that the coefficient on *GAAPDEF* is higher than the coefficient on *NOGAAPDEF* and the difference is significant at the 0.01 level (see column 1). In other words, cost of debt is higher by about 95 bp for firms whose component auditors have GAAP-related audit deficiencies than component auditors without such deficiencies. In column 2, we find that coefficients on *BIG4NETWORK* and *OTHERNETWORK* are positive and significant,

[21] We collect this information from the PCAOB inspection reports (source: Audit Analytics).
[22] This is collected from the PCAOB website. https://pcaobus.org/Enforcement/Decisions/Pages/default.aspx
[23] This is collected from the PCAOB Form 2 downloaded from the PCAOB website.
[24] In our main analyses, we have 393 issuers use component auditors. The number is reduced to 270 in this analysis because identities of component auditors are only required to be disclosed if the component auditor individually contributes to 5 percent or greater of the total audit hours. If the lead auditor uses component auditors in an audit but none of these component auditors individually contributes to 5 percent or greater, the lead auditor only needs to disclose the number of component auditors individually representing less than 5 percent of total audit hours but not their identities. (PCAOB 2015b)

and difference in coefficients significant at the 0.01 level, indicating that cost of debt is higher by about 58 bp when the component auditor and the lead auditor are not in the same Big 4 networks.[25] Results in column 3 indicate that cost of debt is higher when the component auditor is subject to frequent inspections by the PCAOB than when the component auditor is inspected less frequently (difference in coefficients significant at the 0.05 level). In column 4, the coefficient on *PCAOBORDER* is significantly higher than that on *NOPCAOBORDER*, consistent with the prediction that lenders demand larger premium if the component auditors are of lower quality. Last, results in column 5 show that component auditors with fewer CPAs are associated with higher cost of debt, compared to component auditors with more CPAs. In other words, lenders perceive component auditors that employ more CPAs as being more competent. Overall, these findings shed light on what specific attributes of component auditors mitigate or exacerbate cost of debt and are relevant to the PCAOB, client-firms, auditors, and others.

[Insert Table 5 About Here]

Additional analyses

In this section, we discuss the results of several additional analyses to further explore the effect of component auditors on cost of debt.

Bond market event study

We conduct an event study to examine the immediate bond market reaction surrounding the disclosure of component auditor use in Form AP. This analysis is motivated by two reasons. First, the event study takes advantage of the fact that Form AP is a relatively clean disclosure that is issued independently of other firm disclosures and thus, could provide a more persuasive evidence of the causal relation between the use of component auditors and cost of debt. Second, we can use a sample that includes a broader set of firms, including those not seeking a bank loan.

[25] This finding is consistent with Carson et al. (2019) who document that audit quality problems exist when involving component auditors, regardless whether the component auditor is in the same network as the lead auditor or not, based on a sample of Australian multinational firms from 2006 to 2013.

We use public bond trading data from Trade Reporting and Compliance Engine (TRACE) for the event study. Following Gurun et al. (2015), we measure abnormal bond return as the difference between the bond return at day *t* and the corresponding maturity-matched U.S. Treasury security. To test debt market response to the news about component auditors, we calculate one-day (*CAR (0,0)*) and three-day (*CAR (-1,1)*) cumulative abnormal bond returns around the disclosure of Form AP for companies that disclose for the first time that they use component auditors (treatment sample), and for companies that disclose for the first time that they do not use component auditors (control sample). Results are presented in Panel A of Table 6. For companies that use component auditors, the first-time disclosure of Form AP is associated with negative abnormal bond returns. The mean *CAR (0,0)* is -0.083 percent and *CAR (-1,1)* is -0.191 percent and both of them are statistically significant at the 0.01 level. For companies that do not use component auditors, the mean abnormal bond returns around the first-time disclosure of Form AP are negative but insignificant. More importantly, the differences in mean values of *CAR (0,0)* and *CAR (-1,1)* between the treatment sample and the control sample are significant. These findings suggest that lenders react negatively to Form AP disclosure on the use of component auditors.

As companies that use component auditors can be fundamentally different from companies that do not use component auditors, the difference in bond market responses to treatment and control samples could be attributed to differences in firm characteristics between the two samples. To alleviate this concern, in Panel B of Table 6, we focus only on companies that use component auditors in two or more consecutive years, and compare abnormal bond returns around their first-time disclosure of Form AP with that around their second-time disclosure of Form AP. Results show that there is a negative and significant abnormal bond return around the first-time disclosure but no significant abnormal return around the second-time disclosure, which is consistent with the notion that lenders react negatively when use of component auditors is disclosed for the first time by the borrower. Overall, the results in Table 6 support our findings in Tables 4 and 5 that lenders perceive that use of component auditors exacerbates information risk.

[Insert Table 6 About Here]

Foreign operations and component auditors

As mentioned earlier, there are multiple benefits of using component auditors. First, it alleviates the lead auditor's problem with resource constrains. Second, component auditors are more familiar with local culture, customs, tax laws and business practices and this knowledge can enhance audit quality (Carson et al. 2016). These benefits particularly apply to firms with significant foreign operations because in those firms the lead auditors are more likely to face resource constrains or lack specific local expertise. Thus, we expect that the use of component auditors will be perceived as more beneficial (less costly) for firms with significant foreign operations.

To test our conjecture, we employ two measures to capture the extent of a firm's foreign operations (*FORGN*): (1) the ratio of the absolute value of pre-tax income from foreign operations scaled by total assets (*FORGNNI*); (2) the ratio of the absolute value of current foreign income tax and deferred foreign income tax to total assets. (*FORGNTAX*). On average, *FORGNNI* and *FORGNTAX* is about 2.8 percent and 0.1 percent of total assets. Next, we define an indicator variable, *FORGN* equals 1 if *FORGNNI* and *FORGNTAX* are both above the sample mean, and 0 otherwise. We reestimate model (1) with *FORGN* and *COMPOAUDTR*×*FORGN* and the results are in Table 7. In column 1 (2), foreign operations are measured based on *FORGNNI* (*FORGNTAX*). In column 3, foreign operations are measured based on both *FORGNNI* and *FORGNTAX*. We find that, in all three columns, the coefficient on *COMPOAUDTR* is positive and significant, indicating that use of a component auditor is positively associated with cost of debt for firms with a low level of foreign operations. However, the coefficient on *COMPOAUDTR*×*FORGN* is negative and significant in all three columns. This indicates that that the risk premium on the use of component auditor is mitigated by about 31 bp to 51 bp for firms with a high level of foreign operations. These findings point to a significant economic benefit of using component auditors for firms with a high level of foreign operations. These findings are consistent with concurrent audit research which finds that use of local auditors who have strong knowledge with regard to local culture, customs, tax laws and business practices enhances audit quality. It also consistent with the PCAOB (2013)'s statement that using component auditors

can be an effective and cost-efficient way in multinational audits. This finding can be especially informative to the PCAOB and others about the potential benefits of using component auditors (PCAOB 2016a, 7).

[Insert Table 7 About Here]

The level of participation by component auditors

While our main analyses use an indicator variable for the presence or the absence of a component auditor and its impact on cost of debt, in this section we examine whether the level of participation by component auditors plays a role in affecting cost of debt. We measure component auditor participation in two ways. First, we use two indicator variables, *HPARTICIPN* and *LPARTICIPN* to proxy high level and low level of component auditor participation. *HPARTICIPN* (*LPARTICIPN*) is equal to 1 if participation by a component auditor is above (below) 5 percent of total audit hours, and 0 otherwise.[26] Second, we use a continuous variable, *PARTICIPN*, calculated as the percentage of hours conducted by component auditors.[27] *PARTICIPN* is equal to 0 for companies that do not use component auditors.

We reestimate model (1) and replace *COMPOAUDTR* with our proxies for the level of component auditor participation. In Table 8, we present results where component auditor participation is measured by *HPARTICIPN* and *LPARTICIPN*. Results from column (1) show that both *HPARTICIPN* and *LPARTICIPN* are positive and significantly associated with loan spread, and the difference in the coefficients is not significant. As results in Table 8 indicate that the impact of component auditor use on cost of debt is mitigated for companies with high level of foreign operations, we exclude firms with high level of foreign operations (i.e. *FORGN*=1*)* and reestimate the association between component auditor participation and cost of debt. Results in column (2) show that the coefficient on *HPARTICIPN* is significantly larger than that on *LPARTICIPN*, suggesting that for companies with low level of foreign operations cost of debt is increasing in the level of component auditor participation. When we use a continuous measure of the level

[26] This cutoff is used by the PCAOB to determine the materiality of the impact by a component auditor. PCAOB deems a participation of 5 percent or more as material, and requires more detailed disclosure for component auditors whose participation level if equal to or large than 5 percent (PCAOB 2013).

[27] Lead auditors have the option to report the extent of participation as either an exact percentage or a range of the percentage of audit hours. When the range is reported, we use the midpoint in our calculations.

of participation by component auditors (*PARTICIPN*), untabulated results indicate that for the full sample, the coefficient on *PARTICIPN* is not significant. However, when we estimate the model with *PARTICIPN*×*FORGN*, we find that the coefficients on *PARTICIPN* is 1.269 (significant at the 0.05 level) and *PARTICIPN*×*FORGN* is -2.433 (significant at the 0.01 level). These findings suggest that cost of debt is positively associated with the level of component auditor participation for companies with low level of foreign operations, and this positive association is largely mitigated for companies with high level of foreign operations. Overall, consistent with the findings in Table 7, we find evidence that the level of component auditor participation has a negative impact on cost of debt only for companies with low level of foreign operations.

[Insert Table 8 About Here]

Lead auditor attributes

Last, drawing from prior research, we examine the moderating role of two attributes of the lead auditor on the relation between the use of a component auditor and cost of debt. There is a large body of research that supports the notion that higher audit quality is associated with the Big 4 auditors as well as investor perception of quality of audits by the Big 4 auditors (Teoh and Wong 1993; Becker et al. 1998; Krishnan 2003; DeFond et al. 2016). Second, prior research also finds that audit quality is associated with auditor's industry specialization (Francis et al. 2005). Therefore, we predict that when the lead auditor is a Big 4 auditor or an industry specialist, the lead auditor will be better able to monitor and supervise the work of the component auditor and the resulting audit quality will be higher than when the lead auditor lacks these attributes.

Results of this analysis are in Table 9. In column 1, we find that the coefficient on *COMPOAUDTR* is positive and significant consistent with the results in Table 4. However, the coefficient on *COMPOAUDTR*×*BIG4* is negative and insignificant, indicating that cost of debt is not lower when the lead auditor is a Big 4 auditor. The insignificant coefficient on *COMPOAUDTR*×*BIG4* could also be due to that the majority (nearly 92 percent) of the firms hire Big 4 auditors. As a result, there is little variation in *BIG4* across sample firms. Results in column 2 indicate that the coefficient on *COMPOAUDTR*×*SPECIALIST* is

-36.485 and significant at the 0.01 level. This indicates that the cost of debt is lower by about 36 bp when the lead auditor is a specialist. Thus, there is some evidence that lead auditor's industry expertise mitigates lenders' concerns about the use of component auditors.

[Insert Table 9 About Here]

Robustness tests

Difference-in-difference analysis

We perform a difference-in-difference analysis to shed light on the causal relation between the use of component auditors and cost of debt. Results in Table 4 support the notion that lenders perceive the net effect of component auditor use exacerbates information risk. Thus, we expect to see an increase in cost of debt after firms disclose for the first time to the public that they use component auditors. The new Form AP is required by the PCAOB for audit reports issued after January 31, 2017, and the disclosure of component auditors in Form AP took effect for audit reports issued after June 30, 2017. Thus, for audit reports issued between January 31, 2017 and June 30, 2017, there was no information about the use of component auditors disclosed in Form AP. Creditors are likely to be aware of the use of component auditors only from audit reports issued after June 30, 2017. Therefore, we compare loans issued right after the first Form AP that disclosed the use of component auditors with loans issued before to test whether creditors *change* loan pricing after they became aware of use of component auditors by borrowers' lead auditors. We first identify a group of loan facilities issued right after the first Form AP that disclosed the use of component auditors and compare them with loan facilities issued by the *same* firm in 2017 but before the initial filing of Form AP. [28] We define treatment firm as those which disclosed in Form AP that they use component auditors, and control firm as those which disclosed in Form AP that they do not use component auditors. In our research design, before the initial filing of Form AP that disclosed the use of component auditors, there was no information about the use of component auditors for both treatment firms and control firms. However, after the initial filing of Form AP indicating use of component auditors, firms in the treatment group

[28]We use loans issued in 2017 and after to make sure that our results capture the effect of component auditor disclosure, rather than the effect of Form AP.

disclosed that they use component auditors, while control group disclosed that they do not use component auditors. Our sample includes 223 treatment facilities and 106 control facilities. Figure 1 presents a timeline of Form AP disclosure requirement. In Figure 2, we plot *SPREAD* for treatment and control firms before and after the initial filing of Form AP. It shows that both treatment and control firms experience a decrease in *SPREAD* after Form AP, but such decrease is much smaller for treatment firms compared to control firms.

[Insert Figure 1 About Here]

[Insert Figure 2 About Here]

Next, we examine the change in cost of debt before and after the first Form AP that disclosed the use of component auditors, and test whether this change is significantly different between treatment and control groups. We estimate the following model:

$$\begin{aligned} SPREAD = \quad & ß_0 + ß_1 TREATMENT + ß_2 POST + ß_3 TREATMENT \times POST + \\ & ß_m LOAN\ CHARACTERISTICS + ß_n FIRM\ CHARACTERISTICS + \\ & LPURPOSE\ FE + INDUSTRY\ FE + YEAR\ FE + \varepsilon_t \end{aligned} \quad (3)$$

where *TREATMENT* equals 1 for firms that disclosed the existence of a component auditor in the initial Form AP issued after June 30, 2017 and equals 0 for firms which disclosed no use of a component auditor in the initial Form AP issued after June 30, 2017. *POST* equals 1 for loans issued after the initial Form AP and 0 for loans issued before. Other variables are the same as defined before. The variable of interest in model (3) is *TREATMENT*×*POST* and we predict $ß_3 > 0$. The results of model (3) are in Table 10. The coefficient on *TREATMENT*×*POST*, capturing the difference-in-difference effect is positive and significant at the 0.05 level. This indicates that the change in cost of debt is indeed higher by about 22 bp for firms that disclosed the use of component auditors in Form AP relative to firms that did not use component auditors. These findings are consistent with the results in Tables 4 and provide further assurance on the causal nature of the relation between component auditor use and cost of debt.

[Insert Table 10 About Here]

We conduct several additional robustness tests. To conserve space, we discuss these results without tabulating the results. First, to address the concern that our results could be driven by subsidiaries in high-risk locations, for each company we calculate the average Rule of Law score of all subsidiaries and include

it in model (1) as a control.[29] Our results remain unchanged. Second, we exclude companies whose component auditors are located in low Rule of Law countries from the sample, and we continue to find a positive and significant association between component auditor use and cost of debt. Third, to address the concern that our results could be driven by time-invariant confounds, we re-estimate model (3) with firm fixed effects. We find that the results in Table 10 continue to hold with firm fixed effects.

7. Conclusion

While non-U.S. auditors audit a significant proportion of U.S.-based clients, until recently, lenders were largely unaware of the involvement of component auditors since the U.S.-based lead auditor was not required to disclose information about participating auditors. Using the disclosure under Form AP mandated by the PCAOB, we find that cost of debt is higher by about 15 bp to 22 bp when component auditors are used relative to engagements that do not involve component auditors. These findings are consistent with the notion that lenders associate lower audit quality and higher information risk with firms that use component auditors. We also provide evidence that several attributes of the component auditor, the firm, and the lead auditor moderate the relation between cost of debt and the use of a component auditor. Notably, we find that component auditors with GAAP-related audit deficiencies and PCAOB disciplinary action have the largest adverse impact on cost of debt. Cost of debt is also higher when the lead auditor and the component auditors are not from the same Big 4 audit networks, when the component auditor has a higher rate of inspections by the PCAOB, and when component auditors hire fewer CPAs. On the other hand, we find that the risk premium on the use of a component auditor is largely mitigated for clients with a high level of foreign operations. This finding is consistent with the notion that component (local) auditors may have a significant advantage over U.S.-based lead auditors in auditing foreign operations due to their superior knowledge of local laws and business customs and proximity to the local clients. Finally, results of an event study supports the notion that the bond market reacts negatively when use of component auditors is disclosed for the first time by borrowers.

[29] see https://info.worldbank.org/governance/wgi/.

Our findings have important implications for capital market participants, managers, auditors, the PCAOB, and others. First, our empirical evidence suggests that the recently mandated disclosure about participation by other non-U.S. based auditors is informative to lenders in loan pricing decisions. Thus, our findings offer some support for the PCAOB's claim that Form AP disclosure will enhance transparency to investors (PCAOB 2016a). We believe our findings are relevant to other jurisdictions that are considering mandating similar disclosure on participation by other auditors. Second, our findings on specific attributes that mitigate or exacerbate lenders' concerns about information risk are potentially useful to regulators and others. Regulators and auditors could identify engagements with a higher *ex ante* audit risk (e.g., component auditors with GAAP-related audit deficiencies or PCAOB disciplinary action) and devise strategies to increase efforts to minimize the negative impact of component auditors on audit quality.

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Appendix: Variables Definitions

SPREAD	All-in spread drawn from the Dealscan database. It is defined as the amount that a borrower pays in basis points over LIBOR or LIBOR equivalent for each dollar drawn down.
COMPOAUDTR	Equals 1 if the lead auditor uses at least one component auditor (disclosed in Form AP) and 0 if no component auditor is used by the lead auditor.
LOANSIZE	Natural log of the loan facility amount.
MATURITY	Natural log of the loan maturity measured in years.
PERFORMPR	Equals 1 if the loan has performance pricing provisions and 0 otherwise.
LOANTYPE	Equals 1 if the loan is a revolving loan and 0 otherwise.
NLENDERS	Total number of lenders in a single loan.
LPURPOSE FE	Indicator variables for loan purpose, including corporate purposes, debt repayment, working capital, takeover, etc.
SIZE	Natural log of total assets.
LEVERAGE	The ratio of total debt to total assets.
MB	The ratio of market value of equity to book value of equity.
ROA	The ratio of net income to total assets.
TANGIBILITY	The ratio of net PPE to total assets.
BSEGMENT	The number of business segments.
GSEGMENT	The number of geographic segments.
INVREC	The ratio of inventory and receivables to total assets.
AGE	The number of years since the firm was first included in COMPUSTAT.
ZSCORE	Altmans' (1968) Z-score. Higher values of *ZSCORE* indicate less financial distress.
CASHVOL	Standard deviation of quarterly cash flows from operations (scaled by yearly assets) over the five fiscal years prior to the loan initiation year.
ACCRUALS	Residuals from firm-specific regressions of changes in working capital on past, present and future operating cash flows (Dechow and Dichev 2002).
EXTRMGROW	Equals 1 if the industry-adjusted sale growth falls in the top quintile and 0 otherwise.
ICWEAK	Equals 1 if the firm has disclosed material weaknesses in internal control reports under SOX Section 404 or 302 and 0 otherwise.
RESTATEMENT	Equals 1 if the firm misstates its financial reports and 0 otherwise.
AUDITDELAY	The number of days between the fiscal year end date and the audit report date, minus the SEC's filing deadline requirement.
FORGNSUB	The natural log of the number of foreign subsidiaries.
USSUB	The natural log of the number of U.S. subsidiaries.
TREATMENT	Equals 1 for firms that disclosed the use of component auditors in the first Form AP issued after June 30, 2017 and 0 for firms which disclosed no use of component auditors in the first Form AP issued after June 30, 2017.
POST	Equals 1 for loans issued after the first Form AP disclosing component auditors became available (audit reports issued after June 30, 2017) and 0 for loans issued before.
FORGNNI	The ratio of the absolute value of pretax foreign income to total assets.
FORGNTAX	The ratio of the absolute value of foreign income tax to total assets.

FORGN	Equals 1 if *FORGNNI* (or *FORGNTAX*) is above the sample mean and 0 otherwise.
CAR(0,0)	Cumulative abnormal bond return on the Form AP disclosure day. Abnormal bond return is calculated as the difference between bond return and the corresponding maturity-matched U.S. Treasury security.
CAR(-1,1)	Cumulative abnormal bond return for the three days around the Form AP disclosure day. Abnormal bond return is calculated as the difference between bond return and the corresponding maturity-matched U.S. Treasury security.
Component Auditor Characteristics	
HPARTICIPN	Indicating higher participation by component auditors. Equals 1 if participation by a component auditor is above 5 percent of total audit hours and 0 otherwise.
LPARTICIPN	Indicating low participation by component auditors. Equals 1 if participation by a component auditor is equal or less than 5 percent of total audit hours and 0 otherwise.
GAAPDEF	Equals 1 for firms whose component auditors had any GAAP deficiency in their inspection reports and 0 otherwise. (source: Audit Analytics)
NOGAAPDEF	Equals 1 for firms whose component auditors did not have any GAAP deficiency in their inspection reports and 0 otherwise. (source: Audit Analytics)
BIG4NETWORK	Equals 1 if the component auditors and the lead auditor belong to the same Big 4 network and 0 otherwise. (source: PCAOB Form 2)
OTHERNETWORK	Equals 1 if the component auditors and the lead auditor do not belong to the same Big 4 network and 0 otherwise. (source: PCAOB Form 2)
HIGHINSPECT	Equals 1 for firms whose component auditors' number of PCAOB inspections is above the sample mean, and 0 otherwise. (source: Audit Analytics)
LOWINSPECT	Equals 1 for firms whose component auditors' number of PCAOB inspections is below the sample mean, and 0 otherwise. (source: Audit Analytics)
PCAOBORDER	Equals 1 for firms whose component auditors face PCAOB disciplinary orders and 0 otherwise. (source: https://pcaobus.org/Enforcement/Decisions/Pages/default.aspx)
NOPCAOBORDER	Equals 1 for firms whose component auditors do not face PCAOB disciplinary orders and 0 otherwise. (source: https://pcaobus.org/Enforcement/Decisions/Pages/default.aspx)
MORECPA	Equals 1 if the average number of CPAs hired by component auditors is above the sample mean, and 0 otherwise. (source: PCAOB Form 2)
LESSCPA	Equals 1 if the average number of CPAs hired by component auditors is below the sample mean, and 0 otherwise. (source: PCAOB Form 2)
Lead auditor Characteristics	
BIG4	Equals 1 if the firm's lead auditor is one of the Big 4 firms and 0 otherwise.
SPECIALIST	Equals 1 if the firm's lead auditor is an industry specialist and 0 otherwise. Auditors are coded as industry specialists if their market shares (measured using client assets) are above 25 percent in the year.

Table 1: Samples Selection Process and Yearly Loan Distribution

Panel A of this table describes the sample selection process and Panel B presents the distribution of loan facilities by year and loan type.

Panel A

Loan facilities issued between July 2017 and June 2019 that have available information from COMPUSTAT	3,219
Minus: financial institutions	(543)
Minus: observations with no available information of component auditor use from Form AP before the loan issuance date	(1,494)
Minus: observations which are not incorporated in the U.S.	(226)
Minus: observations with missing information on loan characteristics	(96)
Minus: observations with missing information on firm characteristics	(139)
Final Sample: Number of facilities	**721**
Number of facilities with component auditors	*393*
Number of facilities without component auditors	*328*

Panel B

Year	Term Loans	Revolvers	Others	All Facilities
2017	6	12	1	19
2018	277	357	36	670
2019	10	19	3	32
Total	293	388	40	721
Percent	40.64 percent	53.81 percent	5.55 percent	100.00 percent__

Table 2: Descriptive Statistics

Panel A of this table presents descriptive statistics of model variables used in the main analyses. Panel B presents the univariate test of differences between firms that use component auditors and those that do not. Panel C provides information on the location of component auditor headquarters in our sample. *, **, *** indicate, statistical significance at the 0.10, 0.05, and 0.01 levels, respectively. See Appendix for variable definitions. Data covers July 2017 through June 2019.

Panel A: Descriptive Statistics of Variables Used to Test the Relation between Cost of Debt and Use of Component auditors

VARIABLES	N	Mean	Median	SD	P25	P75
SPREAD	721	194.240	150.000	127.644	125.000	225.000
COMPOAUDTR	721	0.545	1.000	0.498	0.000	1.000
LOANSIZE	721	19.944	20.030	1.367	19.296	20.819
MATURITY	721	1.449	1.609	0.495	1.504	1.609
PERFORMPR	721	0.110	0.000	0.313	0.000	0.000
LOANTYPE	721	0.538	1.000	0.499	0.000	1.000
NLENDERS	721	9.774	8.000	6.816	5.000	13.000
SIZE	721	8.465	8.361	1.518	7.474	9.346
LEVERAGE	721	0.354	0.326	0.194	0.227	0.472
MB	721	4.586	2.757	8.059	1.572	5.069
EXTRMGROW	721	0.117	0.000	0.321	0.000	0.000
ROA	721	0.047	0.046	0.066	0.016	0.075
TANGIBILITY	721	0.282	0.190	0.248	0.087	0.427
ZSCORE	721	3.223	2.587	2.566	1.553	4.076
CASHVOL	721	0.021	0.014	0.028	0.008	0.023
BSEGMENT	721	2.996	3.000	1.901	1.000	4.000
GSEGMENT	721	3.107	2.000	2.512	1.000	4.000
INVREC	721	0.218	0.188	0.160	0.084	0.312
AGE	721	32.437	26.000	21.124	14.000	52.000
USSUB	721	2.547	2.708	1.561	1.609	3.584
FORGNSUB	721	2.164	2.303	1.900	0.000	3.892
ARC	721	6.008	6.004	0.304	5.826	6.188
ACCRUALS	721	-0.018	-0.005	0.163	-0.081	0.063
ICWEAK	721	0.089	0.000	0.285	0.000	0.000
RESTATEMENT	721	0.039	0.000	0.193	0.000	0.000
BIG4	721	0.919	1.000	0.272	1.000	1.000
AUDIDELAY	721	-14.111	-23.000	37.412	-32.000	-16.000
FORGNNI	614	0.028	0.011	0.040	0.001	0.039
FORGNTAX	721	0.001	0.000	0.002	0.000	0.001

Panel B: Univariate Analysis of Characteristics of Firms with and without Component Auditors

	Companies with Component Auditors			Companies without Component Auditors			Mean Difference
VARIABLES	N	Mean	Median	N	Mean	Median	
SPREAD	393	193.732	150.000	328	194.849	162.500	-1.117
LOANSIZE	393	19.968	20.030	328	19.915	20.029	0.052
MATURITY	393	1.445	1.609	328	1.455	1.609	-0.01
PERFORMPR	393	0.115	0.000	328	0.104	0.000	0.011
LOANTYPE	393	0.517	1.000	328	0.564	1.000	-0.047
NLENDERS	393	10.204	9.000	328	9.259	8.000	0.944*
SIZE	393	8.539	8.434	328	8.377	8.204	0.162
LEVERAGE	393	0.339	0.315	328	0.372	0.353	-0.032**
MB	393	5.055	2.989	328	4.024	2.554	1.031*
EXTRMGROW	393	0.087	0.000	328	0.152	0.000	-0.066***
ROA	393	0.048	0.046	328	0.046	0.044	0.002
TANGIBILITY	393	0.227	0.155	328	0.348	0.253	-0.121***
ZSCORE	393	3.415	2.826	328	2.994	2.394	0.421**
CASHVOL	393	0.022	0.015	328	0.020	0.013	0.002
BSEGMENT	393	3.097	3.000	328	2.875	3.000	0.222
GSEGMENT	393	4.107	4.000	328	1.909	1.000	2.198***
INVREC	393	0.236	0.212	328	0.198	0.144	0.038***
AGE	393	33.204	26.000	328	31.518	25.500	1.685
USSUBSIDIARY	393	2.598	2.773	328	2.486	2.637	0.112
FSUBSIDIARY	393	3.043	3.611	328	1.110	0.000	1.933***
ARC	393	6.022	6.043	328	5.992	5.956	0.030
ACCRUALS	393	-0.036	-0.014	328	0.004	0.003	-0.04***
ICWEAK	393	0.089	0.000	328	0.088	0.000	0.001
RESTATEMENT	393	0.031	0.000	328	0.049	0.000	-0.018
BIG4	393	0.944	1.000	328	0.890	1.000	0.054***
AUDITDELAY	393	-25.847	-28.000	328	-0.049	-21.000	-25.799***
FORGNNI	367	0.038	0.023	247	0.012	0.000	0.026***
FOREIGNTAX	393	0.002	0.001	328	0.000	0.000	0.002***

Panel C: Component Auditor Headquarter Locations

Component Auditor_ Headquarter	Frequency	Percent
United Kingdom	57	15.41%
Germany	43	11.62%
China	42	11.35%
Mexico	24	6.49%
Canada	19	5.14%
Switzerland	18	4.86%
Brazil	18	4.86%
Japan	17	4.59%
Netherlands	16	4.32%
India	14	3.78%
Poland	10	2.70%
Singapore	9	2.43%
Ireland	9	2.43%
France	9	2.43%
Australia	9	2.43%
Korea	5	1.35%
Czech Republic	5	1.35%
Belgium	5	1.35%
United States	4	1.08%
Italy	4	1.08%
Sweden	3	0.81%
Spain	3	0.81%
Philippines	3	0.81%
Malaysia	3	0.81%
Portugal	2	0.54%
Costa Rica	2	0.54%
Colombia	2	0.54%
Chile	2	0.54%
Argentina	2	0.54%
Other countries	11	2.97%
Total	370*	100%

Note: This is only based on observations whose component auditors individually contribute over 5 percent of the total audit hours, so component auditor information including their headquarters is disclosed.

Table 3: Determinants of Using Component auditors

Panel A provides descriptive statistics of the sample used to predict the use of a component auditor in an audit and Panel B presents the results of a logistic regression of *COMPOAUDTR* on determinants of using component auditors identified in prior research. *COMPOAUDTR* equals 1 if the firm's lead auditor used a component auditor and 0 otherwise. We use this model to estimate the likelihood of using a component auditor and construct a matched sample based on propensity scores. *,**, and *** indicate, respectively, statistical significance at the 0.10, 0.05, and 0.01 levels for a two-tailed test. Reported *p*-values are based on standard errors clustered at firm and year-month level. See Appendix for other variable definitions. Data covers July 2017 through June 2019.

Panel A: Descriptive Statistics of Variables Used to Estimate the Likelihood of Using a Component Auditor

VARIABLES	N	Mean	Median	SD	P25	P75
COMPOAUDTR	8198	0.329	0.000	0.470	0.000	1.000
SIZE	8198	6.610	6.969	2.701	5.047	8.405
LEVERAGE	8198	0.319	0.227	0.424	0.053	0.428
ROA	8198	-0.311	0.012	2.188	-0.057	0.056
EXTRMGROW	8198	0.195	0.000	0.396	0.000	0.000
INVREC	8198	0.274	0.200	0.246	0.070	0.408
BIG4	8198	0.617	1.000	0.486	0.000	1.000
AGE	8198	22.920	20.000	17.175	9.000	31.000
BSEGMENT	8198	2.021	1.000	1.657	1.000	3.000
GSEGMENT	8198	2.203	1.000	2.293	1.000	3.000
USSUB	8198	1.534	1.386	1.614	0.000	2.708
FORGNSUB	8198	1.072	0.000	1.565	0.000	2.079
ARC	8198	5.789	5.820	0.443	5.497	6.107

Panel B: Determinants of Using Component Auditors

VARIABLES	*COMPOAUDTR*
SIZE	0.056***
	(0.001)
LEVERAGE	-0.065
	(0.315)
ROA	0.067
	(0.182)
EXTRMGROW	-0.098**
	(0.039)
INVREC	0.247*
	(0.082)
BIG4	0.148**
	(0.014)
AGE	-0.008***
	(0.000)
BSEGMENT	-0.009
	(0.578)
GSEGMENT	0.102***
	(0.000)
USSUBSIDIARY	-0.137***
	(0.000)
FSUBSIDIARY	0.307***
	(0.000)
ARC	0.550***
	(0.000)
Constant	-4.115***
	(0.000)
Industry FE	Yes
Year FE	Yes
Pseudo R2	0.303
Observations	8,198

Table 4: Results of Regression of Cost of Debt on Component Auditors

This table presents the results of a regression of *SPREAD* on *COMPOAUDTR* and control variables. *SPREAD* is the difference in basis points over LIBOR. *COMPOAUDTR* equals 1 if the firm's lead auditor used a component auditor and 0 otherwise. See Appendix for other variable definitions. Results in column 1 does not include fixed effects. Results in column 2 includes fixed effects for year, industry, and loan purpose. Results in column 3 presents the results on propensity score matched sample. *,**, and *** indicate, respectively, statistical significance at the 0.10, 0.05, and 0.01 levels for a two-tailed test. Reported *p*-values are based on standard errors clustered at firm and year-month level. Data covers July 2017 through June 2019.

	Full Sample		*PSM Sample*
	(1)	(2)	(3)
VARIABLES	*SPREAD*	*SPREAD*	*SPREAD*
COMPOAUDTR	**14.946*** **	**22.357*** **	**18.013** **
	(2.808)	**(3.582)**	**(2.038)**
LOANSIZE	-18.697***	-21.788***	-27.431***
	(-6.230)	(-8.455)	(-9.569)
MATURITY	38.624***	33.861***	6.805
	(6.726)	(4.589)	(0.427)
PERFORMPR	-1.692	2.280	-10.144
	(-0.363)	(0.391)	(-1.503)
LOANTYPE	-72.541***	-59.950***	-48.373***
	(-14.695)	(-7.751)	(-5.844)
NLENDERS	-1.631***	-1.232***	-0.464
	(-4.742)	(-3.949)	(-0.789)
SIZE	-5.028*	-1.320	-6.590
	(-1.733)	(-0.618)	(-1.408)
LEVERAGE	73.412***	109.268***	121.104***
	(5.436)	(10.831)	(4.956)
MB	-0.171	0.175	0.856*
	(-0.664)	(0.433)	(1.887)
EXTRMGROW	-0.849	21.789**	28.271*
	(-0.281)	(2.079)	(1.790)
ROA	-84.534	-171.208*	-273.326***
	(-0.984)	(-1.732)	(-4.054)
TANGIBILITY	-21.407**	29.219**	-39.724
	(-2.323)	(2.500)	(-1.277)
ZSCORE	-3.101**	-0.286	0.280
	(-2.004)	(-0.152)	(0.087)
CASHVOL	1,326.778***	1,244.313***	1,136.749***
	(4.504)	(6.310)	(6.136)
BSEGMENT	0.848	-2.785**	-0.496
	(0.642)	(-2.157)	(-0.158)
GSEGMENT	4.863***	2.925**	5.672***
	(3.554)	(2.134)	(2.979)
INVREC	-63.669***	-78.267***	-126.811***

	(-2.813)	(-7.127)	(-3.649)
AGE	-0.562**	-0.265**	-0.725**
	(-2.560)	(-2.331)	(-2.222)
USSUB	2.296**	5.868***	8.877***
	(2.023)	(4.534)	(2.767)
FORGNSUB	-9.636***	-10.912***	-9.708**
	(-6.102)	(-8.784)	(-2.530)
ARC	19.961***	30.559***	9.492
	(3.781)	(4.349)	(0.305)
ACCRUALS	12.293	34.186*	16.413
	(0.815)	(1.719)	(0.403)
ICWEAK	10.667	15.003	28.259**
	(0.859)	(1.215)	(2.068)
RESTATEMENT	44.873***	55.500***	24.825*
	(8.496)	(8.097)	(1.922)
BIG4	-47.274***	-37.573***	-60.126***
	(-4.510)	(-2.704)	(-4.466)
AUDITDELAY	0.092**	0.150***	-0.056
	(2.369)	(3.777)	(-0.493)
Constant	519.154***	399.126***	734.616***
	(10.653)	(5.714)	(4.561)
Industry FE	NO	Yes	Yes
Year FE	NO	Yes	Yes
LPURPOSE FE	NO	Yes	Yes
Observations	721	721	474
R^2	0.379	0.501	0.554
Number of *TREATMENT* Loans	393	393	237
Number of *CONTROL* Loans	328	328	237

Table 5: Results of Regression of Cost of Debt on Component Auditor Characteristics

This table presents the results of a regression of *SPREAD* on various characteristics of the component auditor. *SPREAD* is the difference in basis points over LIBOR. See Appendix for other variable definitions. *,**, and *** indicate, respectively, statistical significance at the 0.10, 0.05, and 0.01 levels for a two-tailed test. Reported *p*-values are based on standard errors clustered at firm and year-month level. Data covers July 2017 through June 2019.

	(1)	(2)	(3)	(4)	(5)
VARIABLES	*SPREAD*	*SPREAD*	*SPREAD*	*SPREAD*	*SPREAD*
GAAPDEF	**94.743*** **				
	(3.820)				
NOGAAPDEF	**16.088** **				
	(2.320)				
BIG4NETWORK		**19.280***			
		(1.949)			
OTHERNETWORK		**58.035*** **			
		(3.434)			
HIGHINSPECT			**28.481*** **		
			(3.116)		
LOWINSPECT			**16.470**		
			(1.357)		
PCAOBORDER				**86.152*** **	
				(14.687)	
NOPCAOBORDER				**11.746***	
				(1.935)	
MORECPA					**0.960**
					(0.094)
LESSCPA					**23.064*** **
					(3.586)
LOANSIZE	-24.480***	-25.358***	-24.850***	-25.537***	-25.191***
	(-8.999)	(-10.414)	(-9.860)	(-11.058)	(-10.094)
MATURITY	31.906***	32.294***	32.598***	34.951***	32.653***
	(7.186)	(6.034)	(6.347)	(8.689)	(7.068)
PERFORMPR	-0.650	2.724	1.601	-1.433	1.043

	(-0.103)	(0.308)	(0.210)	(-0.212)	(0.125)
LOANTYPE	-61.009***	-61.881***	-61.314***	-60.755***	-61.272***
	(-13.193)	(-12.196)	(-11.691)	(-10.631)	(-11.589)
NLENDERS	-1.375***	-1.033***	-1.179***	-1.315***	-1.187***
	(-4.456)	(-2.858)	(-3.021)	(-3.237)	(-2.921)
SIZE	2.629	2.102	3.860	5.733***	5.377**
	(0.815)	(0.739)	(1.589)	(2.703)	(2.154)
LEVERAGE	134.249***	120.211***	115.262***	116.103***	110.587***
	(8.704)	(9.503)	(9.004)	(5.325)	(8.114)
MB	-0.230	-0.351	-0.421	-0.286	-0.567
	(-0.588)	(-0.686)	(-0.859)	(-0.704)	(-1.168)
EXTRMGROW	23.294***	22.155***	21.315***	22.546***	21.239***
	(2.984)	(3.365)	(3.078)	(3.140)	(3.010)
ROA	-202.993***	-197.861***	-197.977***	-161.452**	-199.862***
	(-3.109)	(-2.991)	(-3.315)	(-2.564)	(-2.973)
TANGIBILITY	-9.051	-10.617	-8.864	-9.293	-12.884
	(-0.763)	(-0.768)	(-0.613)	(-0.690)	(-0.887)
ZSCORE	1.761	0.332	-0.134	-0.084	-0.294
	(0.853)	(0.161)	(-0.068)	(-0.037)	(-0.156)
CASHVOL	744.389***	805.033***	849.654***	730.508***	877.621***
	(2.682)	(3.071)	(3.047)	(2.864)	(3.135)
BSEGMENT	-5.530***	-5.094***	-5.153***	-4.477***	-4.866***
	(-4.817)	(-4.756)	(-5.179)	(-4.597)	(-4.644)
GSEGMENT	5.942***	5.759***	5.743***	6.141***	6.873***
	(4.674)	(4.717)	(5.047)	(6.046)	(6.280)
INVREC	-35.317	-51.345*	-39.014	-43.143*	-46.394*
	(-1.442)	(-1.705)	(-1.476)	(-1.780)	(-1.832)
AGE	-0.120	-0.162	-0.131	-0.208	-0.177
	(-0.864)	(-0.994)	(-0.719)	(-1.172)	(-1.099)
USSUB	7.330***	6.619***	6.774***	7.599***	5.363***
	(3.966)	(4.129)	(4.476)	(5.085)	(3.832)
FORGNSUB	-14.839***	-14.045***	-14.511***	-15.630***	-14.017***
	(-4.511)	(-3.314)	(-3.602)	(-4.575)	(-3.885)
ARC	14.184**	5.397	9.721*	-6.482	14.752***

	(2.328)	(0.993)	(1.787)	(-1.060)	(2.645)
ACCRUALS	44.348***	39.937***	38.168***	40.341***	34.519**
	(4.393)	(3.214)	(3.304)	(5.437)	(2.441)
ICWEAK	11.374	6.961	8.814	10.233	10.803
	(1.180)	(0.819)	(0.980)	(1.000)	(1.130)
RESTATEMENT	85.638***	86.731***	86.355***	88.281***	89.376***
	(10.607)	(9.964)	(10.677)	(11.346)	(10.546)
BIG4	-30.890**		-32.888**	-32.016**	-36.742***
	(-2.238)		(-2.488)	(-2.279)	(-2.651)
AUDITDELAY	0.154***	0.135***	0.137***	0.149***	0.101***
	(3.673)	(3.795)	(3.473)	(4.185)	(3.425)
Constant	534.813***	573.766***	552.911***	660.729***	528.043***
	(7.867)	(10.314)	(9.856)	(11.283)	(9.509)
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
LPURPOSE FE	Yes	Yes	Yes	Yes	Yes
Observations	598	598	598	598	598
R-squared	0.493	0.480	0.482	0.482	0.499
F-test					
GAAPDEFICY -NOGAAPDEF=0	78.655***				
BIG4NETWORK-OTHERNETWORK=0		38.755**			
HIGHINSPECT-LOWINSPECT=0			12.011**		
PCAOBORDER-NOPCAOBORDER=0				74.406***	
LESSCPA-MORECPA=0					22.104***

Table 6: Abnormal Bond Market Returns Around the First-time Disclosure of Component Auditors

This table reports the mean one-day and three-day cumulative abnormal bond returns around the disclosure of component auditor use in Form AP. Abnormal bond return is calculated as bond return on day *t* minus the return on the corresponding maturity-matched U.S. Treasury securities. Panel A shows cumulative abnormal returns for companies which disclose for the first time that they use component auditors, and for companies which disclose for the first time that they do not use component auditors. Panel B shows cumulative abnormal returns for companies which disclose for the first time that they use component auditors, and for companies which disclose for the second time that they use component auditors. The last column of each panel shows the difference in mean cumulative abnormal bond returns between the two groups. ***, **, and * indicate significance at the 0.01, 0.05 and 0.10 levels, respectively.

Panel A: Firms using component auditors *vs.* firms not using component auditors

	(1)		(2)		
	No. of bonds	First-time disclosure: Use of component auditor	No. of bonds	First-time disclosure: Not using component auditor	Difference (1) vs. (2)
Mean CAR(0,0)	1107	-0.083%***	1036	-0.017%	-0.066%**
Mean CAR(-1,1)	373	-0.191%***	413	-0.047%	-0.144%**

Panel B: Only firms using a component auditor

	(1)		(2)		
	No. of bonds	First-time disclosure: Use of component auditor	No. of bonds	Second-time disclosure: Use of component auditor	Difference (1) vs. (2)
Mean CAR(0,0)	1107	-0.083%***	1250	0.013%	-0.096%***
Mean CAR(-1,1)	373	-0.191%***	473	0.094%	-0.285%***

Table 7: Results of Regression of Cost of Debt on Component Auditor Conditioned on Foreign Operations

This table presents the results of a regression of *SPREAD* on use of a component auditor conditioned on the extent of foreign operations and control variables. *SPREAD* is the difference in basis points over LIBOR. See Appendix for other variable definitions. *,**, and *** indicate, respectively, statistical significance at the 0.10, 0.05, and 0.01 levels for a two-tailed test. Reported *p*-values are based on standard errors clustered at firm and year-month level. Data covers July 2017 through June 2019.

	Foreign Operations = FORGNNI	*Foreign Operations = FORGNTAX*	*Foreign Operations = FORGNNI & FORGNTAX*
	(1)	(2)	(3)
VARIABLES	*SPREAD*	*SPREAD*	*SPREAD*
COMPOAUDTR	**32.894*** **	**32.215*** **	**31.263*** **
	(4.369)	**(4.446)**	**(3.977)**
COMPOAUDTR×FORGN	**-30.747** **	**-31.665*** **	**-51.451*** **
	(-2.533)	**(-2.734)**	**(-2.930)**
FORGN	-15.163	12.570	-0.978
	(-1.408)	(1.045)	(-0.078)
LOANSIZE	-26.065***	-22.838***	-25.718***
	(-8.912)	(-7.291)	(-7.890)
MATURITY	30.790***	34.407***	30.403***
	(3.114)	(4.162)	(2.878)
PERFORMPR	1.455	0.853	2.656
	(0.332)	(0.121)	(0.591)
LOANTYPE	-65.424***	-61.235***	-65.027***
	(-9.679)	(-7.220)	(-9.263)
NLENDERS	-1.752***	-1.283***	-1.841***
	(-5.113)	(-3.719)	(-5.557)
SIZE	-0.507	-0.721	-1.009
	(-0.214)	(-0.296)	(-0.437)
LEVERAGE	96.109***	105.147***	93.210***
	(7.003)	(11.993)	(6.051)
MB	0.744	0.513	0.797
	(1.487)	(1.048)	(1.529)
EXTRMGROW	-156.095	-183.197*	-182.538*
	(-1.516)	(-1.706)	(-1.767)
ROA	16.106*	20.709**	15.035*
	(1.768)	(2.224)	(1.829)
TANGIBILITY	36.456***	42.356***	45.802***
	(2.658)	(2.888)	(3.296)
ZSCORE	1.330	1.611	0.679
	(0.591)	(0.995)	(0.268)
CASHVOL	1,272.066***	1,269.303***	1,333.325***
	(4.726)	(3.983)	(4.892)
BSEGMENT	-2.220	-2.303	-1.813

	(-1.120)	(-1.539)	(-0.942)
GSEGMENT	3.215**	2.746*	3.313**
	(2.155)	(1.852)	(2.280)
INVREC	-86.619***	-86.469***	-91.884***
	(-5.950)	(-7.056)	(-9.923)
AGE	-0.188	-0.296***	-0.254
	(-1.159)	(-2.727)	(-1.357)
USSUB	8.725***	6.302***	9.405***
	(6.284)	(4.727)	(5.774)
FORGNSUB	-10.649***	-10.566***	-11.480***
	(-14.520)	(-8.688)	(-12.839)
ARC	40.730***	39.797***	47.922***
	(4.866)	(6.490)	(5.265)
ACCRUALS	15.322	22.555	15.172
	(0.524)	(0.858)	(0.471)
ICWEAK	17.373	13.574	16.749
	(1.194)	(1.088)	(1.035)
RESTATEMENT	58.079***	57.836***	60.460***
	(9.123)	(8.339)	(8.772)
BIG4	-38.333***	-39.369***	-39.047***
	(-3.114)	(-3.010)	(-3.424)
AUDITDELAY	0.011	0.114***	-0.001
	(0.245)	(2.960)	(-0.026)
Constant	414.994***	358.476***	385.664***
	(5.285)	(5.327)	(4.409)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
LPURPOSE FE	Yes	Yes	Yes
Observations	614	721	614
R^2	0.508	0.489	0.512

Table 8: Results of Regression of Cost of Debt on the Level of Component Auditor Participation

This table presents the results of a regression of *SPREAD* on the level of participation by component auditor. *SPREAD* is the difference in basis points over LIBOR. The level of participation by component auditors is measured by *HPARTICIPN* and *LPARTICIPN*. *HPARTICIPN* is equal to 1 if participation by component auditor is above 5 percent of total audit hours and 0 otherwise. *LPARTICIPN* is equal to 1 if participation by component auditor is equal or below 5 percent of total audit hours and 0 otherwise See Appendix for other variable definitions. *,**, and *** indicate, respectively, statistical significance at the 0.10, 0.05, and 0.01 levels for a two-tailed test. Reported *p*-values are based on standard errors clustered at firm and year-month level. Data covers July 2017 through June 2019.

	Full Sample	*Excluding firms with high foreign operations*
	(1)	(2)
VARIABLES	*SPREAD*	*SPREAD*
HPARTICIPN	**24.275*** **	**49.942*** **
	(4.331)	**(4.667)**
LPARTICIPN	**19.988***	**18.653**
	(1.888)	**(1.392)**
LOANSIZE	-21.819***	-27.744***
	(-8.477)	(-7.110)
MATURITY	33.808***	35.803***
	(4.579)	(4.883)
PERFORMPR	2.613	18.477
	(0.440)	(1.593)
LOANTYPE	-60.038***	-69.748***
	(-7.778)	(-8.264)
NLENDERS	-1.245***	-2.769***
	(-4.159)	(-9.779)
SIZE	-1.222	2.021
	(-0.592)	(0.862)
LEVERAGE	108.820***	114.673***
	(10.674)	(6.273)
MB	0.160	1.337***
	(0.410)	(3.245)
EXTRMGROW	21.302**	-0.474
	(2.040)	(-0.050)
ROA	-169.333*	-233.021*
	(-1.707)	(-1.844)
TANGIBILITY	28.808**	39.731**
	(2.451)	(1.983)
ZSCORE	-0.294	-2.218
	(-0.159)	(-0.591)
CASHVOL	1,247.984***	1,298.653***
	(6.398)	(8.500)
BSEGMENT	-2.858**	-5.823***
	(-2.369)	(-2.603)

GSEGMENT	2.873**	5.745***
	(2.233)	(2.638)
INVREC	-77.828***	-86.831***
	(-7.393)	(-4.802)
AGE	-0.267**	-0.296
	(-2.322)	(-1.019)
USSUB	5.992***	14.840***
	(4.769)	(6.090)
FORGNSUB	-11.212***	-21.654***
	(-7.707)	(-8.499)
ARC	29.703***	60.310***
	(3.910)	(3.672)
ACCRUALS	32.787*	35.562
	(1.707)	(1.205)
ICWEAK	14.743	20.900
	(1.186)	(1.226)
RESTATEMENT	55.357***	79.969***
	(8.190)	(12.636)
BIG4	-37.091***	-36.391***
	(-2.691)	(-2.728)
AUDITDELAY	0.154***	-0.211***
	(4.137)	(-3.016)
Constant	404.571***	338.640**
	(5.430)	(2.151)
Industry FE	Yes	Yes
Year FE	Yes	Yes
LPURPOSE FE	Yes	Yes
Observations	721	479
R^2	0.500	0.561
F-Test		
HPARTICIPN - LPARTICIPN >0	4.287	31.289***

Table 9: Results of Regression of Cost of Debt on Component Auditor Conditioned on Lead auditor Quality

This table presents the results of a regression of *SPREAD* on the use of a component auditor conditioned on the lead auditor quality and control variables. *SPREAD* is the difference in basis points over LIBOR. See Appendix for other variable definitions. *,**, and *** indicate, respectively, statistical significance at the 0.10, 0.05, and 0.01 levels for a two-tailed test. Reported *p*-values are based on standard errors clustered at firm and year-month level. Data covers July 2017 through June 2019.

	(1)	(2)
VARIABLES	*SPREAD*	*SPREAD*
COMPOAUDTR	**24.546*** **	**41.822*** **
	(1.114)	**(8.471)**
COMPOAUDTR×BIG4	**-1.070**	
	(-0.042)	
COMPOAUDTR×SPECIALIST		**-36.485*** **
		(-4.133)
SPECIALIST		-1.172
		(-0.257)
LOANSIZE	-22.998***	-22.778***
	(-7.341)	(-7.378)
MATURITY	35.489***	34.800***
	(4.239)	(4.098)
PERFORMPR	0.727	-3.266
	(0.105)	(-0.472)
LOANTYPE	-61.792***	-61.821***
	(-7.305)	(-7.548)
NLENDERS	-1.331***	-1.329***
	(-3.888)	(-3.692)
SIZE	-0.978	-1.128
	(-0.389)	(-0.427)
LEVERAGE	106.819***	99.071***
	(9.918)	(11.588)
MB	0.457	0.480
	(0.875)	(0.890)
EXTRMGROW	21.432**	27.125***
	(2.258)	(2.905)
ROA	-164.365	-154.581
	(-1.610)	(-1.484)
TANGIBILITY	41.419***	47.428***
	(2.789)	(3.316)
ZSCORE	1.500	1.054
	(0.945)	(0.705)
CASHVOL	1,273.163***	1,286.623***
	(3.983)	(3.905)
BSEGMENT	-2.222	-2.940**

	(-1.522)	(-2.192)
GSEGMENT	2.374	2.643*
	(1.625)	(1.891)
INVREC	-92.651***	-104.148***
	(-5.550)	(-8.499)
AGE	-0.297***	-0.248***
	(-2.866)	(-2.762)
USSUB	6.362***	6.507***
	(4.365)	(4.751)
FORGNSUB	-10.667***	-10.921***
	(-7.850)	(-9.978)
ARC	34.840***	38.062***
	(4.604)	(6.155)
ACCRUALS	21.473	24.500
	(0.814)	(0.722)
ICWEAK	12.618	11.905
	(0.948)	(0.814)
RESTATEMENT	55.625***	60.376***
	(7.596)	(7.948)
BIG4	-36.928*	-32.372**
	(-1.771)	(-2.207)
AUDITDELAY	0.150***	0.142***
	(3.644)	(3.593)
Constant	392.182***	387.264***
	(5.746)	(6.072)
Industry FE	Yes	Yes
Year FE	Yes	Yes
LPURPOSE FE	Yes	Yes
Observations	721	721
R-squared	0.486	0.494

Figure 1: Timeline of Form AP Disclosure

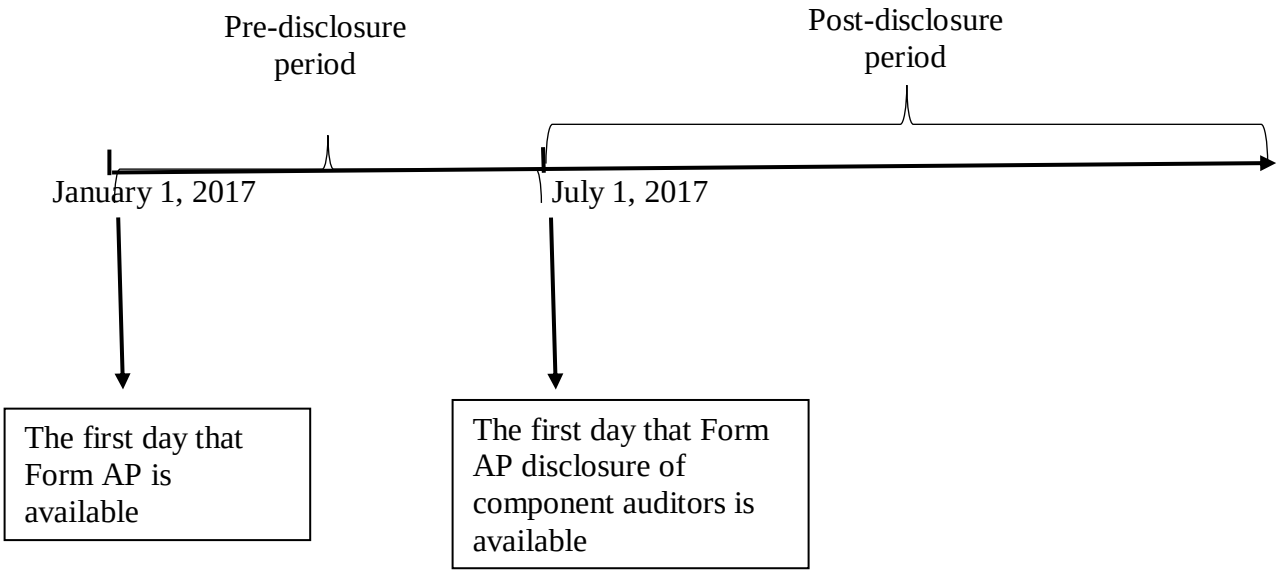

Figure 2: Cost of Debt Before and After Form AP: Treatment *vs.* Control Firms

This figure shows a plot of cost of debt (*SPREAD*) for treatment and control firms before and after the initial filing of Form AP. It shows that both treatment and control firms experience a decrease in *SPREAD* after Form AP, but such decrease is much smaller for treatment firms compared to control firms.

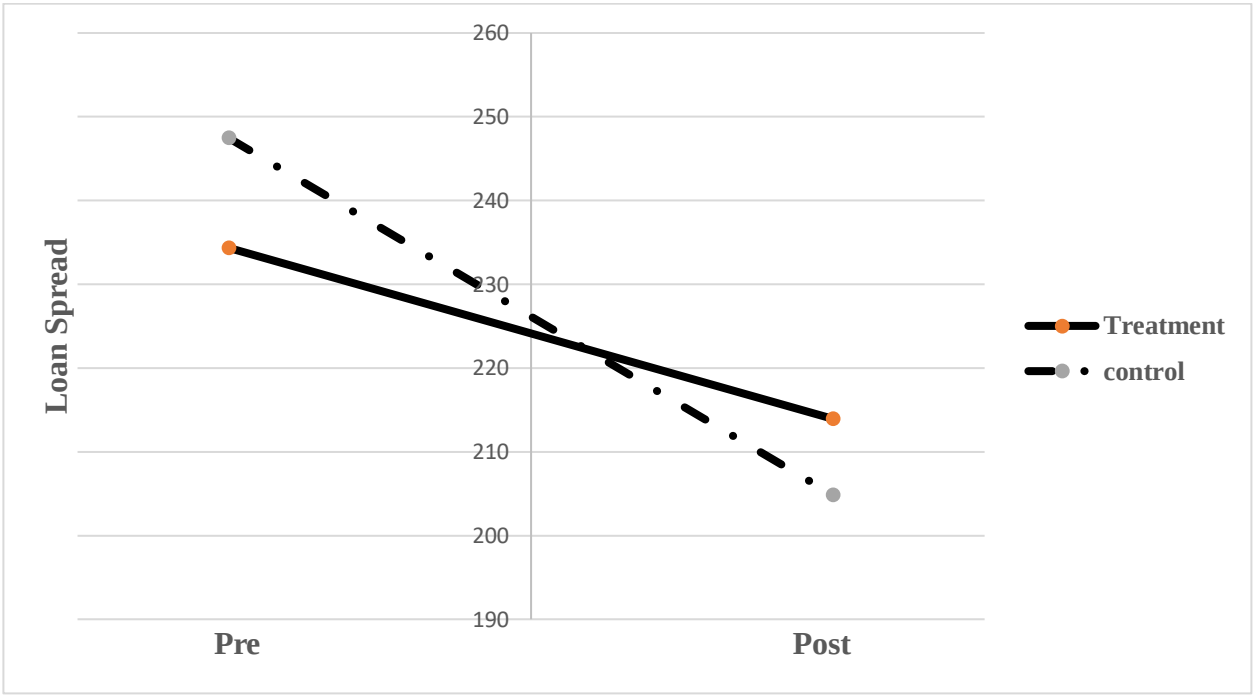

Table 10: Cost of Debt and Use of Component Auditors: Difference-in-Difference Analysis

This table presents the results of the difference-in-difference analysis. *SPREAD* is the difference in basis points over LIBOR. *TREATMENT* equals 1 for firms that disclosed the existence of a component auditor in the initial Form AP issued after June 30, 2017 and 0 for firms which disclosed no use of a component auditor in the initial Form AP issued after June 30, 2017. *POST* equals 1 for loans issued after the initial Form AP disclosing component auditors became available (audit reports issued after June 30, 2017), and 0 for loans issued before. See Appendix for other variable definitions. *,**, and *** indicate, respectively, statistical significance at the 0.10, 0.05, and 0.01 levels for a two-tailed test. Reported *p*-values are based on standard errors clustered at firm and year-month level.

VARIABLES	*SPREAD*
POST	-15.719
	(-1.163)
TREATMENT×POST	**22.319****
	(1.976)
TREATMENT	-13.302
	(-0.530)
LOANSIZE	-14.999***
	(-3.165)
MATURITY	63.656***
	(3.805)
PERFORMPR	-24.611
	(-0.687)
LOANTYPE	-36.644***
	(-3.316)
NLENDERS	-1.256
	(-1.009)
SIZE	-26.583**
	(-2.495)
LEVERAGE	-35.515
	(-1.007)
MB	-0.339
	(-1.233)
EXTRMGROW	19.683
	(1.071)
ROA	-213.845*
	(-1.650)
TANGIBILITY	78.918**
	(1.960)
ZSCORE	-6.627
	(-1.511)
CASHVOL	-778.918*
	(-1.654)
BSEGMENT	-6.128
	(-1.307)
GSEGMENT	-0.158

	(-0.107)
INVREC	-28.990
	(-0.568)
AGE	-0.026
	(-0.054)
USSUB	4.969
	(1.342)
FORGNSUB	-5.846
	(-1.429)
ARC	105.980***
	(3.358)
ACCRUALS	21.550
	(0.661)
ICWEAK	-3.144
	(-0.137)
RESTATEMENT	27.399
	(1.076)
BIG4	-62.214**
	(-2.541)
AUDITDELAY	0.260
	(0.939)
Constant	26.182
	(0.101)
Industry FE	Yes
Year FE	Yes
LPURPOSE FE	Yes
Observations	329
R-squared	0.653
Treatment Loans	223
Control Loans	106