AUDITOR CHOICE IN COMMONLY OWNED FIRMS

A Dissertation

by

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ABSTRACT

When a company is interconnected with other companies through common ownership, the company's decision making is affected by common owners' incentives to internalize externalities among investees. I argue that common owners have incentives to induce their investees to use the same auditor because it helps to internalize positive externalities arising from higher audit quality and comparability and mitigates common agency problems. Consistent with my expectation, I find that commonly owned companies are more likely to choose the same auditor. I find similar results by exploiting a quasi-experimental setting: changes in common ownership due to the acquisition of financial institutions. Further analyses reveal that investees' use of the same auditor enables common owners to effectively monitor the auditor, which results in higher audit quality. Lastly, cross-sectional test results are consistent with common owners' incentives and abilities affecting investees' choice of the same auditor. My study sheds light on how common ownership, an increasingly important ownership structure, can influence investees' financial reporting through auditor choice.

DEDICATION

This dissertation is dedicated to my wife, Hyejin, whose unconditional love and encouragements have stood me up throughout the process; to my soon-to-be born son, who is a blessing and a support for me; and to my parents and my brother, whose examples and sacrifices have made it possible for me to pursue my career.

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1. INTRODUCTION

U.S. public companies have become increasingly interconnected through common ownership of institutional investors. For example, the fraction of U.S. public companies held by institutional blockholders that simultaneously hold at least 5% of other same-industry companies' equity has increased from below 10% in 1980 to about 60% in 2014 (He and Huang 2017). Common ownership represents a unique ownership structure because common shareholders induce their investees (or managers of the investees) to choose an action that maximizes the total portfolio value instead of the value of a single firm (e.g., Hansen and Lott 1996). In this study, I examine how this ownership structure affects investees' auditor choice decisions, particularly the choice of using the same auditor.[1] In so doing, I extend recent studies on common ownership by showing how common ownership influences investees' financial reporting through auditor choice.

Auditor choice plays a pivotal role in a company's financial reporting (e.g., Pittman and Fortin 2004; Wang, Wong, and Xia 2008; Guedhami, Pittman, and Saffar 2013). Prior literature argues that auditor choice is determined by management incentives and client-specific characteristics (see DeFond and Zhang 2014 for a detailed discussion). Studies in this line of literature consistently assume that auditor choice

[1] I define common ownership as same-industry companies' interconnectedness created by institutional blockholders holding at least 5% of each company's shares. Throughout the paper, I use 'shared auditor' and 'same auditor' interchangeably.

decision is made at the *individual* company level. However, when a company is interconnected with other companies through common ownership, the company's auditor choice is likely to be affected by other companies' and ultimately common owners' incentives. Therefore, it is important to understand common owners' incentives with respect to investees' auditor choice and how the auditor choice affects the financial reporting outcome.

Prior studies argue that when a company imposes externalities on other companies (i.e., when a company's actions affect the value of other companies), common owners of these companies are incentivized to internalize such externalities (e.g., Schmalz 2018).[2] Recent empirical studies provide evidence consistent with this argument. For example, studies find that common ownership results in anti-competitive behavior among investees because competition through price reductions can increase a firm value at the expense of other firm value (i.e., imposes negative externalities), which ultimately reduces the portfolio value (e.g., Azar, Schmalz, and Isabel 2018). He, Huang, and Zhao (2019) argue and find that common owners improve corporate governance because a company's weak governance can impose negative externalities on other companies competing in the managerial labor market. In addition, two accounting studies show that common ownership results in increased disclosures because a

[2] An externality is defined as the cost or benefit that affects a party who did not choose to incur that cost or benefit (Buchanan and Stubblebine 1962). A positive (negative) externality is the positive (negative) effect a party's action confers (imposes) on an unrelated party, which can arise either during the production or the consumption of a good or service. Because common owners are concerned about the combined value of all investees, they have an incentive to internalize externalities by encouraging positive externalities and reducing negative externalities arising among their investees.

company's disclosures create positive externalities by improving information environment in the industry (e.g., Park, Sani, Shroff, and White 2019; Pawliczek and Skinner 2019).

With respect to financial reporting, a company's higher audit quality and greater comparability are likely to confer positive externalities upon other companies in the same industry. For example, Gleason, Jenkins, and Johnson (2008) document that a company's restatement announcement results in negative market reaction not only to the restating company but also to non-restating same-industry companies (i.e., restatement contagion effects). This finding suggests that high-quality auditing for a company, which not only reduces its restatement likelihood but also lowers the probability of other companies' value losses, creates positive externalities. In addition, when a company's accounting becomes more comparable to other companies', shareholders of the other companies also benefit from the increased comparability, from which positive externalities occur. Therefore, a shareholder that owns multiple companies in an industry is likely to have greater incentives to improve audit quality and comparability than shareholders that own just one company.[3]

I posit that common owners are able to internalize these externalities when their investees use the same auditor and thus commonly owned companies are more likely to use the same auditor. First, common owners can monitor external auditors more effectively when their investees use the same auditor because common owners can

[3] In other words, common owners have higher marginal benefits from improving audit quality and comparability for an investee.

assess the quality of shared auditors better.[4] In addition, common owners can increase the monitoring power over the shared auditors because auditors are likely to perceive the importance of the client at the common ownership network level. Accordingly, common owners are able to induce the auditor to act in the interest of common owners (i.e., provide better audit quality) (Reynolds and Francis 2001). For example, if an auditor fails to provide high-quality audits to *one* investee, common owners can switch or threaten to switch the auditor or lower audit fees for *other* investees.[5] Consequently, investees' use of the same auditor enables more effective monitoring of auditors, which in turn results in higher audit quality for their investees.

Second, investees' use of the same auditor helps common owners to internalize externalities from greater comparability. Prior studies provide evidence that an auditor's unique audit methodology affects the financial reporting style of their clients, thereby improving comparability among auditor-sharing clients (Francis, Pinnuck, and Watanabe 2014; Ege, Kim, and Wang 2019). When investees' financial reporting is more

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[4] Agency theory suggests that principals should exercise various monitoring activities to reduce agency costs and to align the interest of agents with that of principals. Not only *active* monitoring but also *passive* monitoring can be effective governance tools (Tirole 2010). For example, without direct monitoring or intervention, shareholders can induce managers to work in the interest of shareholders by using the threat of selling the securities or through better assessment of the manager's performance. Because audit inputs and audit quality are not easily observable by outsiders, agency problems also arise between shareholders and auditors (Antle 1982). Therefore, shareholders who are not responsible for *actively* overseeing external auditors' work still have to exercise various *passive* monitoring activities to induce auditors to work in the interest of shareholders. Through repeated interactions with a shared auditor, common owners are better able to understand the auditor's audit production process, and this better assessment of the auditor's quality is one important monitoring tool that reduces information asymmetry between auditors and shareholders.

[5] These monitoring tools (e.g., switching auditors or the threat of switching) are similar to the exit strategy that blockholders use to monitor managers (i.e., selling the securities and the threat of selling) (Edmans 2009). I test these monitoring mechanisms in Section 6.1.

comparable, it becomes easier to compare their underlying economics, which would help common owners to make better portfolio reallocation decisions and monitor investees' management effectively.

Moreover, commonly owned companies are less likely to have concerns about common agency problems that arise from the use of shared auditors. When an auditor audits multiple companies with heterogeneous interests, the auditor (common agent)'s action may benefit some companies (principal) at the expense of other auditor-sharing companies (Bernheim and Whinston 1986). One example is proprietary information leakage through shared auditors, which makes same-industry rivals reluctant to use the same auditor (Kwon 1996; Aobdia 2015). However, when companies are interconnected through common ownership, potential conflicts of interest arising from sharing auditors are mitigated and coordinated. Thus, the common agency problem would be less of a concern to common owners, which increases auditor-sharing likelihood.

I test my main prediction by constructing three measures of common ownership between companies in the same industry – the existence and the number of common owners, and the percentage of common ownership. First, using all same-industry company pairs, I show that common ownership is positively associated with auditor-sharing likelihood. From an economic perspective, commonly owned companies are 3.3 percentage points more likely to use the same auditor than companies that do not have common ownership, and this difference represents a 22.1% increase in the likelihood. Next, focusing on companies that switch their auditors, I find that a company is more likely to hire an auditor that was used by other commonly owned companies. To address

endogeneity concerns, I employ a changes-on-changes specification and find that an increase (decrease) in common ownership is associated with a subsequent increase (decrease) in auditor-sharing likelihood. Lastly, as a quasi-experimental setting, I exploit changes in common ownership due to BlackRock's acquisition of Barclays and find that the increase in common ownership leads to an increase in the probability of using the same auditor.

I conduct several additional tests. First, I explore whether the use of the same auditor leads to the benefits that I posited. For example, I find that a company is more likely to punish its auditor after the auditor fails to provide high-quality audits to other clients when they have higher common ownership with the company. The results imply that common owners can monitor auditors more effectively and therefore shared auditors are incentivized to provide high-quality audits to commonly owned clients. Consistent with this notion, I find that auditors provide higher quality audits and more efficient audits to a client that has higher common ownership with other clients. In addition, I document that commonly owned investees' use of the same auditor is associated with greater comparability.

Second, in cross-sectional analyses, I find that the positive relation between common ownership and auditor-sharing likelihood is more pronounced when common owners are activist institutions or when CEO insider ownership is not material. The results are consistent with common owners' incentives and abilities to internalize externalities affecting their investees' choice of the same auditor. Third, as one potential channel through which common owners affect investees' auditor choice, I show that

commonly owned companies are more likely to have the same audit committee members. Lastly, I confirm that the results are robust when I examine various subsamples such as similar-size pairs, propensity-score matched pairs, and Big 4 pairs, exclude industry-specialist auditors, and control for product market similarity.

This study makes several contributions. First, the study contributes to the literature on auditor choice by documenting how common ownership, a recently growing ownership structure, affects investees' choice of auditors. Prior studies have argued that some client-characteristics (e.g., client size, complexity, incentives to reduce agency costs, etc.) are associated with the choice of high-quality auditors and extensively focused on dichotomous choices such as Big N or specialist auditors. Studies also examine how a company's ownership structure is associated with the choice of high-quality auditors because ownership structure affects agency costs (e.g., Fan and Wong 2005; Guedhami, Pittman, and Saffar 2009; Wang et al. 2008). However, it is relatively unexplored in the literature how a company's connection with other companies affects the choice of a specific auditor. Two studies examine whether competitors are likely to share the same auditor (Aobdia 2015; Bills, Cobabe, Pittman, and Stein 2020). These papers argue that the choice of sharing an auditor with competitors is determined by the benefit stemming from auditor industry specialization and the cost arising from information leakage. My study differs in that I focus on companies' interconnection through common ownership and document how the incentives of common owners affect investees' auditor choice.

Second, my study contributes to the common ownership literature. Many studies

focus on a negative association between common ownership and product market competition (e.g., Azar et al. 2018). Anton, Ederer, Gine, and Schmalz (2018) further find that management wealth-performance sensitivities are lower when common ownership is higher, consistent with compensation contracts reflecting the incentive of common owners to reduce competition among investees. Recent accounting studies find that common ownership is positively associated with voluntary disclosures, consistent with disclosures mitigating competition (Pawliczek and Skinner 2019; Park et al. 2019). While many studies focus on the anti-competitive implication of common ownership, some studies document the bright side of common ownership such as innovation productivity and more active monitoring (He and Huang 2017; He et al. 2019). By providing evidence that the use of the same auditor is one channel through which common ownership can improve financial reporting quality of their investees, I answer the call for the need of understanding governance channels employed by common owners (Schmalz 2018).

Lastly, the study contributes to the shared auditor literature. Dhaliwal, Lamoreaux, Litov, and Neyland (2016) and Cai, Kim, Park, and White (2016) find that mergers and acquisition announcement returns are higher when acquirers and targets use the same auditor. Francis et al. (2014) and Ege et al. (2019) provide evidence that companies that use the same audit firm or same global network firms show greater accounting comparability. My study shows that shared auditors, as common agents of multiple clients, can provide higher quality audits to clients that have common principals.

2. RELATED LITERATURE AND HYPOTHSIS DEVELOPMENT

2.1. Common Ownership

The fundamental tenet of financial economics is that shareholders should hold diversified portfolios (e.g., Markowitz 1952; Sharpe 1964). In recent decades, the consolidation of asset management institutions and the increase in index funds and exchange-traded funds (ETFs) have led to a situation in which large blockholders of a firm tend to hold other firms' interests (Anton et al. 2018). For example, He and Huang (2017) find that the fraction of U.S. public companies whose blockholders simultaneously hold other same-industry companies' shares has increased from below 10% in 1980 to about 60% in 2014. Similarly, Anton et al. (2018) show that there has been a significant increase in common ownership concentration in various industry sectors over the past two decades.

Prior theoretical literature has argued that shareholder diversification can lead to companies' considering the impact of their actions on the value of common owners' portfolio because common owners' objective is to maximize the portfolio value (e.g., Rotemberg 1984; Hansen and Lott 1996; Azar 2017). Indeed, in the corporate world, a company's strategic decisions affect not only the value of the company but also the value of other companies that are horizontally or vertically connected or at least mutually affecting each other (Schmalz 2018). Among companies in the same industry, a company's actions can impose various externalities on other companies. Therefore, common shareholders of these companies would consider internalizing such externalities.

Along with the increase in common ownership in recent years, empirical studies have started examining impacts of common ownership and documented that common ownership is associated with various externality-internalizing behaviors. First, studies find that common ownership results in anti-competitive behavior among investees. Competition through aggressive product price reductions or capacity expansions can increase one firm's market share at the expense of its competitors. Consequently, competition can result in lower equilibrium industry profits, thereby creating negative externalities. Therefore, common owners are incentivized to internalize externalities by reducing competition among their investees. For example, Azar, Raina, and Schmalz (2016) and Azar et al. (2018) provide evidence that common ownership causes higher product prices in the banking and airline industries, respectively. Anton et al. (2018) further argue that common ownership is negatively associated with management wealth-performance sensitivities, which suggests that common owners' incentives to reduce competition among investees are reflected in management compensation.

Another stream of literature focuses on the role of common ownership in improving corporate governance. For example, exploiting mutual fund proxy voting data, He et al. (2019) find that common ownership is positively associated with the votes against management on governance proposals for which the interests of shareholders and management tend to diverge. The authors attribute their findings to common owners' incentives to internalize corporate governance externalities (Acharya and Volpin 2010; Dicks 2012). In other words, common owners have stronger incentives to improve corporate governance of their investees because, for the same marginal cost of

improving governance in one company, common owners are poised to reap a higher marginal benefit due to the existence of governance externalities.

Lastly, two accounting studies, Park et al. (2019) and Pawliczek and Skinner (2019), examine the effect of common ownership on corporate disclosures. Prior studies argue that one of the primary constraints to full disclosure is the concern of proprietary information leakage, which reduces a company's competitive advantage (e.g., Beyer et al. 2010). Given that common owners have incentives to lower competition among investees, proprietary information leakage is less likely to be a concern. Moreover, a firm's increased disclosures can improve the information environment for other firms in the same industry, which creates a positive externality. Consistent with these arguments, the authors find that common ownership increases voluntary disclosures.

Indeed, common owners have incentives to internalize all types of externalities that an investee can impose on other investees (Schmalz 2018). With respect to financial reporting, at least two types of externalities exist that a company can impose on other companies in the same industry. First, a company's low-quality financial reporting can impose negative externalities. Gleason et al. (2008) find that accounting restatement announcements induce a shareholder loss not only at the restating firm but also at non-restating firms in the same industry. They argue that this restatement contagion effect is consistent with investors reassessing the credibility of financial reporting of other related firms. Also, Donelson, Flam, and Yust (2019) document that similar contagion effect exists for firms experiencing accounting-related securities litigation. Because high-quality auditing in a company confers positive externalities on other companies,

common owners have greater incentives to improve audit quality of their investees.[6] Second, when a company's financial statements become more comparable to another company's, shareholders of both companies benefit from increased comparability, which creates positive externalities. Therefore, common owners of same-industry companies are incentivized to internalize such externalities by increasing financial reporting comparability among their investees.

2.2. Hypothesis Development

I posit that common owners are able to internalize positive externalities from higher quality auditing and greater comparability when their investees use the same auditor. First, when the same auditor provides audits for their investees, common owners are able to monitor the auditor more effectively. When agency problems arise between the principal and the agent due to information asymmetry, the principal should monitor the agent to induce him or her to work in the interest of the principal. Because audits are credence goods and auditors' actions and quality are not easily observable by outside shareholders, an agency problem also arises between shareholders and auditors (Antle 1982). In other words, shareholders need to monitor auditors to reduce agency costs between shareholders and auditors (i.e., to induce auditors to act in the interest of

[6] For example, American Airlines' restatement announcement on 2/27/2007 resulted in negative market reactions with -11.28% of five-day cumulative return around the announcement. Before the announcement, Fidelity blockheld not only American Airlines but also other airline companies such as US Airways, Southwest Airlines, Jetblue Airways, Airtran Holdings, among others. The same-day cumulative returns of these non-restating airline companies were -4.65%, -1.70%, -7.22%, and -8.24%, respectively. This evidence is consistent with restatement contagion effects. As compared to other blockholders that owned shares of American Airlines only, Fidelity suffered more from both restating and non-restating investees' negative market reactions and therefore would have stronger incentives to improve American Airlines' audit quality.

shareholders). If the same auditor provides audits for multiple investees, common owners can better understand the auditor's audit process and assess the quality of the auditor by observing and comparing audit outcomes for the investees. Better assessment of auditors' quality reduces information asymmetry and agency costs, which in turn helps effective monitoring of auditors.

In addition, common owners can increase the monitoring power over auditors when their investees share the same auditor. A client that is perceived by auditors as less important is likely to be perceived as more important when it is interconnected with other clients through common ownership. In other words, auditors are likely to perceive the importance of their clients at the common ownership network level. This common ownership network-level importance provides common owners with increased monitoring power. For example, when an auditor fails to provide high-quality audits to one investee (i.e., does not act in the interest of common owners), common owners can switch (or threaten to switch) the auditor or lower audit fees for other investees. Because auditors would prefer not to lose their clients and not to lower audit fees, they would act in the interest of common owners and provide higher quality audits to commonly owned clients. Overall, investees' use of the same auditor can help common owners internalize positive externalities from high-quality auditing through more effective monitoring of auditors.[7]

[7] Investees' use of the same auditor can also result in high-quality auditing to the extent that the auditor develops competencies (e.g., industry-specific knowledge) by providing audits for commonly owned companies that are in the same industry. In robustness checks, I re-run the analyses by excluding industry-specialist auditors to show that auditors' industry expertise is not the only reason to use the same auditor.

Second, when investees use the same auditor, common owners are able to internalize positive externalities from greater comparability. Francis et al. (2014) argue that audit firms implement unique audit methodologies, which affect clients' financial reporting style. Specifically, the unique character of audit methodologies implies that each auditor's audit approach will systematically detect or not detect the same client errors, thereby increasing shared-auditor clients' financial reporting comparability. Accounting comparability enables users of financial statements to identify and assess similarities in and differences among items (Barth 2015). [8] Therefore, greater accounting comparability among investees can help common owners to compare the operating performance of their investees and to make a better portfolio reallocation decision. Moreover, when investees have more comparable accounting, common owners are better able to assess the performance of investees' managers and accordingly monitor them more effectively. [9]

Lastly, commonly owned companies are less likely to have concerns about the negative impact of proprietary information leakage that may result from sharing the same auditors. Studies that examine shared auditors argue that competing companies are concerned about potential information leakage, which makes same-industry rivals reluctant to share the same auditor (Kwon 1996; Aobdia 2015). However, to the extent

[8] The Financial Accounting Standards Board (FASB) emphasizes the importance of comparability by stating that "investing and lending decisions essentially involve evaluations of alternative opportunities, and they cannot be made rationally if comparative information is not available" (FASB 1980).
[9] Greater comparability between two companies increases the correlation between idiosyncratic risks in their accounting performance measures. In other words, common risk that is reflected in both firms' economic performance is more likely to similarly manifest in their accounting performance (Lobo, Neel, and Rhodes 2018).

that proprietary information spillover helps strategic collaboration or deters portfolio-value decreasing competition among investees, common owners are less likely to have concerns about hiring the same auditor.

Indeed, proprietary information leakage through shared auditors is one example of common agency problem that arises when an auditor (agent)'s action affects the utility of multiple companies (principals) that share the auditor (Bernheim and Whinston 1986).[10] In other words, if principals that have heterogeneous interests try to influence the common agent, an action of the agent may benefit some principals at the expense of other agent-sharing principals. [11] As another example of common agency problem, Dhaliwal et al. (2016) show that when bidders and targets share the same auditor prior to M&As, shared auditors are likely to favor acquirers at the expense of targets. However, when shared-auditor companies have common ownership, conflicts of interests among them can be mitigated and coordinated. Therefore, commonly owned companies are less likely to suffer from common agency problems when they use the same auditor.

In summary, under the common ownership structure, a company's auditor choice is likely to be affected by the incentives of common owners. Because common owners can have various benefits (or lower costs) when their investees use the same auditor, I expect that commonly owned companies would be more likely to use the same auditor.

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[10] Bernheim and Whinston (1986) note "[f]requently … the action chosen by a particular individual (the agent) affects not just one, but several other parties (the principals) whose preferences for the various possible actions typically conflict." They theoretically argue that in order for bilateral contracting under common agency to lead to an efficient action, principals have to know enough to forecast each other's' incentive schemes.

[11] In addition to asymmetric benefit among principals, a common agency has the potential to create costs such as principals' lobbying costs, monitoring, and bonding costs (Rose 2010).

Although I predict that common owners have a demand for their investees to use the same auditor, it is possible that common ownership is not associated with the likelihood of using the same auditor for many reasons.

First, the study assumes that firms would act in the interest of common owners, but it may be the narrow and orthodox view (Tirole 2010). Particularly, companies may act in the interest of single firms in isolation when the interests of other shareholders or managers are not aligned with the interests of common owners. Second, even though companies act in the interest of common owners, institutional blockholders may have limited ability to influence investees' auditor choice. Third, the benefit from improved comparability may be marginal to sophisticated institutional blockholders who likely have access to private information (Edmans 2009). Lastly, non-trivial auditor switching costs may outweigh potential benefits from using the same auditor. Accordingly, I state my primary hypothesis in the null form: [12]

H1: Companies' connection with other companies through common ownership does not affect the decision of hiring the same auditors.

[12] Although it is unclear how institutional blockholders affect investees' auditor choices, anecdotal examples imply that institutional investors try to take on corporate executives on various governance issues including the choice of outside auditors (Crenshaw 2002). Recently, institutional investors pressured GE to drop its auditor – KPMG that it had been used for more than hundred years (https://www.bloomberg.com/news/articles/2019-04-16/ge-urged-to-drop-kpmg-as-auditor-following-accounting-missteps). Also, Fang et al. (2015) document that U.S. institutional investors induce foreign investees to hire specific Big 4 audit firms, suggesting that institutional investors influence investees' auditor choices.

3. RESEARCH DESIGN

3.1. Common Ownership Measures

I construct common ownership measures by extracting institutional holdings data from the Thomson Reuters's 13F database.[13,14] Specifically, I construct three pair-level common ownership measures, following the logic of Anton et al. (2018) and Anton and Polk (2014). My first measure of common ownership is an indicator variable (D_COwn_{jkq}) that captures the existence of common owners. Specifically, D_COwn_{jkq} is coded 1 if company j and k have at least one common blockholder at quarter q. In other words, if an institutional investor holds more than 5% of shares of company j and k, then D_COwn_{jkq} takes the value of one. The second measure of common ownership is the number of common owners that company j and k have at quarter q (N_COwn_{jkq}). Finally, my third common ownership measure captures the degree of common ownership ($\%\_COwn_{jkq}$). Specifically, $\%\_COwn_{jkq}$ is the proportion of company j and k's total market value of equity that is held by their common blockholders and defined as follows:

[13] The Thomson Reuters data identify managers by SEC filing and assign them a manager number. Some institutions are assigned more than one manager number. Azar et al. (2018) manually assign the same identifier to all occurrences of an institution based on the institution name. I use their cleaned manager numbers to accurately measure common ownership. I thank the authors of Azar et al. (2018) for providing access to their data.

[14] Because I rely on 13Fs to construct common ownership measures, I am limited to calculating common ownership for institutional investors only. Ignoring individual investors that blockhold multiple companies' shares may add noise to my measure. However, underestimated common ownership is likely to bias against my results.

$$\%\_COwn_{jkq} = \frac{\sum_{i=1}\left(MVE^{i}_{jq}+MVE^{i}_{kq}\right)}{MVE_{jq}+MVE_{kq}} \quad (1)$$

where *i* denotes company *j* and *k*'s common blockholder. MVE_{jq} is company *j*'s market value of equity at quarter q and MVE^{i}_{jq} is company *j*'s market value of equity that is held by blockholder *i*. Appendix B presents a numerical example of my common ownership measures. Because 13F database provides quarterly holdings data and my main analysis examines company pairs at the year level, I define common ownership at each quarter-end and take the average to construct year-level measures (e.g., $D\_COwn_{jkt} = \frac{1}{4}\sum_{q=1}^{4} D\_COwn_{jkq}$).

3.2. Main Research Design

My main hypothesis examines whether companies that have higher common ownership are more likely to use the same auditor. To test this, I estimate a pairwise regression as follows:[15]

$$Same\_Aud_{jkt} = \beta_0 + \beta_1 \times COwn_{jkt} + \sum \gamma \times Controls_{jkt} + \alpha_t + \alpha_f + \varepsilon_{jkt} \quad (2)$$

j and k are companies in the same industry (Fama-French 48) and t denotes year. The dependent variable, $Same\_Aud_{jkt}$, is coded 1 if two companies j and k in a pair use the same audit firm at year t. The main variable of interest is $COwn_{jkt}$, which is one of the three pair-level common ownership measures (D_COwn_{jkt}, N_COwn_{jkt}, and $\%\_COwn_{jkt}$). If companies in the same industry are more likely to use the same auditor

[15] I use a linear probability model because non-linear models in the presence of fixed effects can result in inconsistent point estimates due to the incidental parameter problem (Wooldridge 2002). In untabulated tests, I use a logit regression following Bills et al. (2020) and find that the inferences remain unchanged.

when they have higher common ownership, I expect β_1 to be positive.[16]

$Controls_{jkt}$ are pair-level characteristics that may be associated with auditor-sharing likelihood (Bills et al. 2020), including average of company j and k's firm size (*AVG_Size*), differences in size (*Diff_Size*), return on assets (*Diff_ROA*), leverage (*Diff_Lev*), current ratios (*Diff_Curr*), asset turnover (*Diff_Aturn*), capital intensity (*Diff_Capint*), market-to-book ratio (*Diff_MTB*), sales growth (*Diff_Growth*), the amount of new borrowing and stock issuance (*Diff_financing*), the number of business segment (*Diff_Busseg*), annual stock return (*Diff_Ret*), assets with greater audit risk (*Diff_Recinv*), Altman's z-score (*Diff_Altman*), loss indicator (*Diff_Loss*), and accruals (*Diff_DACC*). I additionally control for geographical proximity (*Same_State*) because companies in the same state may attract the same institutional investors and use the same auditor.[17] Lastly, I add year fixed effects (α_t) and industry fixed effects (α_f) to control for unobserved heterogeneity across time and industry. Standard errors are clustered at the industry level.[18] Detailed variable definitions are in Appendix A.

[16] Companies do not choose their auditors at year-end. Therefore, constructing common ownership measures not based on year-end but based on annual average helps us understand how common ownership at year *t* may affect auditor choices at year *t*. However, the results are robust to using common ownership measures constructed at the quarter close to year-ends or at year *t*-1 (untabulated).

[17] Throughout the paper, I examine auditor-sharing at the audit firm level because I predict that a common owner that blockholds companies in different locations would also have similar incentives to use the same auditor. However, the benefit from using the same auditor may be higher when commonly owned companies are in the same region. In untabulated tests, I focus on company pairs that are located in the same metropolitan statistical areas (MSA) and find that the results are statistically similar.

[18] In untabulated tests, I find the results are robust to using industry X year fixed effects or clustering standard errors at the company-pair level or company level.

4. SAMPLE SELECTION AND DATA

I begin with Compustat companies that are headquartered in the U.S. between 2001 and 2017. I obtain stock-market information from CRSP, auditor-information from Audit Analytics, and quarterly institutional 13F holding data from the Thomson Reuters. I exclude companies that have missing accounting, stock market and auditor information, companies that use foreign auditors, and financial institutions (SIC code 6000 – 6999). This results in 49,173 company-years. Next, I create pairs of two companies that are in the same industry and have the same fiscal year. In creating pairs, I retain companies with fiscal year ends in March, June, September, and December, following Francis et al. (2014) and Bills et al. (2020). This process results in 3,158,133 company pairs.[19]

Table 1, Panel A (Panel B) presents the descriptive statistics for company-years (company pair-years) used in my analyses. On average, 16% of pairs use the same auditor (*Same_Aud* = 1) and 16% of pairs have at least one common blockholder (*D_Cown* = 1). When two companies in a pair do not have any common ownership, the likelihood of using the same auditor is 15%. However, when there exists at least one common blockholder, the likelihood of using the same auditor is 21%.[20] This difference

[19] Let n_{ft} denote the number of companies in industry f in year t. Then, the number of unique company-pairs is $\sum_t \sum_f \frac{n_{ft} \times (n_{ft}-1)}{2}$.

[20] When an institution holds more than 50% of shares of multiple companies and treats them as its subsidiaries, it is likely to induce its investees to hire a specific auditor due to the efficiency gain in group

is statistically significant at the 1% level. This provides univariate evidence that companies that are commonly owned are more likely to use the same auditor. When two companies have at least one common owner, the average proportion of two companies' market value of equity that is commonly owned is 11% (*%_Cown*).

auditing. In my sample, only 65 company-pairs have *%_Cown* greater than 50%. The inferences do not change when I exclude pairs with *%_Cown* greater than 50%. Also, results are similar when I exclude pairs with *%_Cown* greater than 20%.

5. TEST RESULTS

5.1. Main Results

Table 2 presents the results of equation (2) using the three measures of common ownership. In Models 1 – 3, I use all company pairs. The coefficients are positive and significant, suggesting that companies that have higher common ownership are more likely to use the same auditor. Specifically, companies that have at least one common blockholder are 3.3% point more likely to use the same auditor than companies that do not have common owners. Because the average unconditional likelihood of sharing the auditor for companies that do not have common owners is 14.9%, this difference represents a 22.1% (3.3/14.9) increase in the likelihood. The coefficients on other control variables are generally consistent with Bills et al. (2020).[21]

Auditor choice is made for both auditor retention and auditor switch. Therefore, Models 1 – 3 examine the association between common ownership and auditor-sharing likelihood, where auditor sharing is the outcome of both auditor retention and switch decisions. In Models 4 – 6, I focus on the association resulting from a company's auditor switch. In other words, I examine whether an auditor-switching company is more likely to share the auditor with a non-switching company when they have higher common

[21] Because I conduct pair-level analyses to test my main hypothesis, some of the regressions use large sample sizes, which may lead to large t-values. However, large sample size does not affect the magnitude of coefficients and the results are economically significant. Also, additional tests using smaller number of observations (e.g., size-matched pairs, propensity-score-matched pairs, and pairs based on 4-digit SIC code) find similarly significant results. Lastly, to directly address potential problems with large observations, I randomly select 10%, 5%, 1% of observations 500 times (e.g., bootstrap replications) in untabulated tests and find that the statistical inferences remain unchanged.

ownership. To test this, I create company pairs *j*-*k* where company *j* switches its auditors at year *t* (from *t*-1 to *t*), peer company *k* does not switch its auditor at year *t*, and company *j* and *k* do not share the auditor at year *t*-1. If company *j*'s (new) auditor choice is affected by its common ownership with company *k*, then newly hired auditor is likely to be the same as company *k*'s auditor. I find that companies that switch their auditors are likely to choose the auditor so that they share the same auditor with commonly owned companies, consistent with my expectation.

5.2. Changes-on-Changes Specification

In Section 5.1, I examine the *association* between two companies' common ownership and the likelihood of using the same auditor. This test, however, does not directly examine whether common ownership affects the choice of auditors. In other words, the finding may be attributable to reverse causality or omitted unobservable variables. Next, I employ a changes-on-changes specification to examine whether a change in common ownership between two companies is associated with a *subsequent* change in the likelihood of using the same auditor. This specification also controls for the impact of time-invariant pair-level characteristics on the likelihood of sharing the same auditor. Specifically, I estimate the following linear regression:

$$\Delta Same\_Aud_{jkt+1} = \beta_0 + \beta_1 \times \Delta COwn_{jkt} + \sum \gamma \times \Delta Controls_{jkt} + \alpha_t + \alpha_f + \varepsilon_{jkt} \quad (3)$$

The dependent variable is $\Delta Same\_Aud_{jkt+1}$, defined as $Same\_Aud_{jkt+1} - Same\_Aud_{jkt}$. In a similar way, I construct change variables (from year *t*-1 to *t*) for all

independent variables included in equation (2).[22] I expect that an increase (decrease) in common ownership would lead to an increase (decrease) in the probability of using the same auditor. Therefore, I expect β_1 to be significant and positive.

Table 3 presents the results. The coefficients on $\Delta COwn_{jkt}$ are positive and significant at the 1% (5%) level in Models 1 and 3 (Model 2). The results reconfirm the finding in Table 3.

5.3. Difference-in-Differences Using a Quasi-experimental Setting

Although the changes-on-changes specification helps address some endogeneity concern, there still can be omitted time-variant forces that lead to increases in common ownership and auditor sharing at the same time. Also, the specification cannot capture the true effect if it takes more than one year to switch auditors. In this section, to further mitigate endogeneity concern, I exploit changes in common ownership arising from the BlackRock's acquisition of Barclays in 2009, following prior studies (e.g., Anton et al. 2018; He et al. 2019). BlackRock acquired Barclays in 2009, and it is unlikely that the acquisition decision was made because of auditor choices of investees in their portfolio. The acquisition created or dramatically increased common ownership for many companies and therefore can be used as a shock that changes common ownership unrelated to the auditor choice.

To test whether the increase in common ownership due to the acquisition resulted in an increase in the likelihood of using the same auditor, I first identify treatment pairs

[22] I exclude *Same_State* because two companies' locations do not change over time.

whose common ownership increased after the acquisition. Specifically, I define company pair *j*-*k* as a treatment pair ($Treat_{jk} = 1$) when 1) two companies did not have common ownership created by these financial institutions before the acquisition (i.e., either BlackRock or Barclays did not blockhold both companies in 2009) and 2) two companies became commonly blockheld by newly merged BlackRock after the acquisition (i.e., company *j* was blockheld by BlackRock (Barclays) and company *k* was blockheld by Barclays (BlackRock) in 2009). Then, I identify control pairs ($Treat_{jk} = 0$) whose common ownership was not affected by the acquisition but that include either BlackRock or Barclays' investees in 2009. For example, if company *j* was blockheld by BlackRock in 2009, then I create control pairs by using company *k* that was blockheld neither by Barclays nor by BlackRock. Because treatment pairs had an increase in common ownership after the acquisition whereas control pairs did not, comparing changes in auditor-sharing likelihood for treatment pairs with those for control pairs enables me to investigate how common ownership affects auditor-sharing likelihood.

I employ a difference-in-differences design by running the following regression.

$$Same\_Aud_{jkt} = \beta_0 + \beta_1 \times Post_t + \beta_2 \times Treat_{jk} + \beta_3 \times Post_t \times Treat_{jk} + \sum \gamma \times Controls_{jkt} + \alpha_f + \varepsilon_{jkt} \quad (4)$$

Because the acquisition was announced in September 2009 and became effective in December 2009, $Post_t$ is coded 1 after 2009. I limit my analysis to pairs between 2007 and 2012 (3 years before to 3 years after the acquisition).[23] Because the newly

[23] Results are statistically similar when I use pairs between 2008 and 2011.

merged institution (BlackRock) may have reallocated their investment by selling a company's shares right after the acquisition, I exclude a pair *j*-*k* from treatment pairs if both *j* and *k* are not blockheld by BlackRock in year 2012 (*t*+3). I expect β_3 to be positive and significant.

Table 4, Model 1 shows the result. The coefficient on *Post* X *Treat* is 0.056 (t-stat 3.57), suggesting that treatment pairs had a significantly higher increase in auditor-sharing likelihood after the acquisition relative to control pairs. Furthermore, the sum of *Post* and *Post* X *Treat* is 0.050 and significant at the 1% level (untabulated). Therefore, treatment pairs had a 5.0%-point increase (20.4% on a relative basis) in auditor-sharing likelihood.[24]

To further control for the impact of pair-level time-invariant characteristics, I run equation (4) in Model 2 by replacing industry fixed effects with pair fixed effects and excluding $Treat_{jk}$ and *Same_State* that are perfectly collinear with pair dummies. The coefficient on *Post* X *Treat* is significant and positive (0.043 with t-stat 3.80), consistent with treatment pairs having an increase in auditor-sharing likelihood after the acquisition. Overall, the test using a plausibly exogenous shock suggests that common ownership affects their investees' auditor choices.

[24] Treatment pairs before 2009 had, on average, 24.5% of auditor-sharing likelihood. Therefore, a 5.0%-point increase in likelihood after the acquisition represents a 20.4% increase in likelihood.

6. ADDITIONAL ANALYSES

6.1. Monitoring of Auditors

I posit that commonly owned companies' use of shared auditors enables effective monitoring of auditors. Because audits are credence goods and information asymmetry exists between shareholders and auditors, shareholders cannot assess the quality of auditors with certainty. When commonly owned companies use the same auditor, common owners are better able to assess the quality of auditors and have greater monitoring power, which in turn induce auditors to work in the interest of common owners. In this section, I test this argument by exploring how companies respond to other companies' restatements.

Specifically, I examine whether a non-restating company' response to its auditor-sharing company's restatement announcement differs depending on their common ownership degree. For example, if company *k* announces a restatement, which reveals new information used to infer the quality of its auditor, other (non-restating) companies j_1 and j_2 that use the same auditor should consider adjusting their belief on the auditor quality and taking any remediating action to maintain audit quality.[25] To the extent that common owners can assess the quality of the same auditor better, I predict

[25] After a material misstatement is found, companies take a variety of remediating actions. For example, companies increase the proportion of outside directors on the board, increase their reporting conservatism, and decide whether to retain involved parties such as audit committee members and executives (Farber 2005; Ettredge, Huang, and Zhang 2012; Srinivasan 2005; Desai, Hogan, and Wilkins 2006). Because external auditors are also responsible for misstatements, auditors are likely to be dismissed when audit failure severity is higher (Hennes, Leone, and Miller 2014). In this study, I examine remediating actions that non-restating companies can take related to auditors.

that company j_1 that has common ownership with company *k* would be more likely to take actions than would company j_2 that does not have common ownership with company *k*.

First, I examine auditor switch as one potential remediating action. If company j_1 perceives that its auditor is of low quality, it can decide to switch the auditor to maintain audit quality. However, auditor switches also accompany non-trivial switching costs.[26] Alternative and less costly ways of maintaining audit quality without switching auditors may include showing dissatisfaction signals through shareholder voting on auditor ratification or lowering audit fees. Although the results from auditor ratification votes are not legally binding (Cassell, Kleppe, and Shipman 2018), managers are sensitive to shareholder dissatisfaction signals (Levit and Malenko 2011; Ferri 2012; Baruna et al. 2017) and auditors are likely to change their behavior to improve audit quality based on voting results (Sainty, Taylor, and Williams 2002). Also, auditors would be incentivized to provide higher quality services to avoid fee reductions. Therefore, in addition to auditor switches, I examine the percentage of votes against the auditor and audit fees. I test this prediction by running the following linear regression:

$$Aud\_Switch_{jt+1}\,(Votes\_against_{jt}, Ln\_audfee_{jt+1}) = \beta \times AVG\_COwn\_Res_{jt} + \sum \gamma \times Controls_{jt} + \alpha_a \times \alpha_f \times \alpha_t + \varepsilon_{jt} \quad (5)$$

First, for each company *j* that does not announce a restatement in year *t*, I identify

[26] For example, Blouin, Grein, and Rountree (2007) argue that auditor switching costs include: (1) costs incurred by the client in educating the auditor about the company's operations, systems, financial reporting practices, and accounting issues, (2) costs incurred by the client in selecting a new auditor, and (3) an increased risk of audit failure.

its shared-auditor same-industry company *k* that announces a restatement in year *t*.[27] Then, I calculate common ownership between company *j* and *k*. For company *j*, there can exist multiple shared-auditor restating companies in a given year. Therefore, I use the average of common ownership between company *j* and restating companies *k* as the variable of interest (i.e., $AVG\_COwn\_Res_{jt} = \frac{1}{K}\sum_{k=1}^{K} COwn_{jkt}$). Dependent variables capture three responses that company *j* can take subsequently: Aud_Switch_{jt+1} coded 1 if company *j* switches its auditor from *t* to *t*+1, $Votes\_against_{jt}$ that is the percentage of votes against the auditor in year *t*, and Ln_audfee_{jt+1} that is the natural logarithm of audit fees in year t+1.[28] I expect β to be positive (negative) for Aud_Switch_{jt+1} and $Votes\_against_{jt}$ (Ln_audfee_{jt+1}).

I control for company *j*'s characteristics that may be associated with auditor switch decisions and voting decisions. Controls include going concern opinion, profitability, leverage, size, market-to-book, current ratio, capital intensity, asset

[27] To identify shared-auditor restating companies, I use auditors who provided assurance on (subsequently) restated financial statements instead of auditors at the time of restatement announcements. For example, restating company *k* shares auditor *a1* with non-restating company *j* in year *t*. However, company *k*'s restated financial statements were audited by auditor *a2* in the past. Then, I do not treat company *k* as company *j*'s shared-auditor company. I exclude restating companies if more than one auditor provided opinions on restated financial statements.

[28] I expect that companies, after observing shared-auditor companies' restatement announcements, would be more likely to take remediating actions when they have higher common ownership with restating companies. To identify when shared-auditor companies announce restatements, I focus on focal company's time period [*t* – 305, *t* + 60], where *t* is the fiscal year end. For example, for company *j* with fiscal year end 12/31/2010, I identify its shared-auditor companies that announce restatements between 03/01/2010 and 03/01/2011. I choose 60 days because median 10-K report lag is 60 days (Krishnan and Yang 2009) and companies are likely to take actions after reporting their financial statements with their current auditor (i.e., auditor at year *t*). In the same example, Aud_Switch_{jt+1} is coded one when company *j* switches its auditor for the audit of 2011 financial statements, and $Votes\_against_{jt}$ is calculated as the percentage of votes against the auditor in year 2010 (after the audit of 2010 financial statements).

turnover, sales growth, financing, foreign sales, the number of business segments, institutional ownership, the existence of blockholders, and audit fees at year *t*. Lastly, I include auditor X industry X year fixed effects ($\alpha_a \times \alpha_f \times \alpha_t$). Adding auditor X industry X year fixed effects enables me to examine how a within-group variation in common ownership between a non-restating company (focal company) and restatement companies is associated with the focal company's subsequent actions.[29] Standard errors are clustered at the company level.

Table 5 presents the results of equation (5). In the auditor switch test, the coefficients on $AVG\_COwn\_Res_{jt}$ are all positive and significant at the 5% level. Economically, a company that has at least one common owner with restatement companies is 1.4 % point more likely to switch its auditor subsequently. This corresponds to 21.4% of the average probability of auditor switch.[30] In the test of votes against the auditor, I find that the coefficients on $AVG\_COwn\_Res_{jt}$ are all positive and significant at the 1% level, which suggests that a company's percentage of votes against the auditor is significantly higher when it has higher common ownership with auditor-sharing companies that announce restatements.

Lastly, in the test of audit fees, I find that the coefficients on $AVG\_COwn\_Res_{jt}$ are all negative and significant at the 1% level. Therefore, companies that are connected

[29] For example, if there are two restatement clients of auditor *a1* in 2012, then all other non-restating clients observe the same restatement announcements. By adding auditor X industry X year fixed effects, I can exploit the within-group (*a1*'s clientele in 2012) variation in common ownership between a focal company and restatement companies.

[30] The average likelihood of auditor switch is 6.53%. Therefore, a 1.4%-point increase in auditor switch probability represents 21.4% of the average probability (1.4% / 6.53%).

with restatement companies pay significantly lower audit fees at year t+1. Overall, the results reveal that common owners can use monitoring tools such as switch, threat to switch, or fee reductions when shared auditors do not act in the interest of common owners (i.e., fail to provide high-quality audits to their investees).

6.2. Audit Quality

If common owners monitor shared auditors more effectively, then auditors are incentivized to provide higher quality audits to commonly owned clients in order not to lose their clients and to avoid fee reductions. In this section, I test whether auditors provide higher quality audits to commonly owned clients by running the following linear regression:

$$AQ_{jt} = \beta \times AVG\_COwn_{jt} + \sum \gamma \times Controls_{jt} + \alpha_a \times \alpha_f \times \alpha_t + \varepsilon_{jt} \quad (6)$$

The dependent variable is audit quality for company *j* at year *t*. I use three audit quality proxies: restatement likelihood, accruals quality, and the absolute value of discretionary accruals. The variable of interest is AVG_COwn_{jt}, defined as the average common ownership of client *j* with other shared-auditor clients *k* that are in the same industry ($AVG\_COwn_{jt} = \frac{1}{K}\sum_{k=1}^{K} COwn_{jkt}$). Controls include company *j*'s characteristics that may be associated with its audit quality. I include auditor X industry X year fixed effects to examine whether an auditor provides differential audit quality to its clients depending upon their common ownership network level. In other words, this design enables me to exploit the within-group (i.e., shared-auditor clientele) variation in common ownership. Standard errors are clustered at the company level.

Table 6 presents the results. Overall, a company that has higher common

ownership with its shared-auditor companies has a lower likelihood of restatement, higher accruals quality, and lower abnormal accruals, suggesting that auditors provide higher quality audits to clients that are interconnected to each other.[31]

Audit quality test using auditor fixed effects provides evidence that auditors provide higher quality audits to commonly owned clients. However, it does not directly test whether common owners benefit from higher audit quality at the portfolio level when more investees use the same auditor. Although it is not possible to perfectly measure overall audit quality at the portfolio level, I test this by using the average occurrence of restatement as follows:

$$Avg\_Restate_{pt} = \beta \times HHI\_Aud_{pt} + \sum \gamma \times Controls_{pt} + \alpha_f + \alpha_t + \varepsilon_{pt} \quad (7)$$

p denotes an industry-level portfolio that is managed by an institutional blockholder. For example, if an institutional investor is a blockholder of 5 companies in a given industry, these 5 companies compose a portfolio that is managed by this common owner. To measure the portfolio's overall audit quality, I take the average of each investee's restatement dummy ($Avg\_Restate_{pt}$).[32] I use both equal-weighted (*Eq_Avg_Restate)* and value-weighted average (*Vw_Avg_Restate*), respectively. Because my dependent variables range from zero to one, I run a fractional response model (Papke

[31] In untabulated tests, I examine alternative audit quality proxies because each proxy may capture different constructs (DeFond and Zhang 2014). I find that the likelihood of issuing a going concern opinion is higher and the likelihood of meeting or beating zero EPS or analyst forecast EPS by one cent is lower for clients that have higher common ownership with other auditor-sharing companies.

[32] I do not use the average value of abnormal accruals because accruals models are used to cross-sectionally capture a company's normal accruals based on accounting mappings of all companies in a given industry-year. Using the average of restatement can be a more direct way of capturing the average audit quality of a portfolio.

and Wooldridge 1996).[33]

The main variable of interest is the portfolio-level degree of using the same auditor. I use the Herfindahl index (HHI_Aud_{pt}) because it captures how concentrated the use of auditors is within a given portfolio. When all companies in a portfolio use the same auditor, the value becomes one. When each investee uses different auditors, the value becomes close to zero. To calculate an auditor's share in a given portfolio, I use three different weights – the number of clients, market value of equity, and audit fees. I expect that a portfolio's overall restatement likelihood is negatively associated with portfolio-level auditor Herfindahl index.

I control for factors that may affect the average audit quality of a portfolio. I include equal-weighted (value-weighted) investee characteristics such as profitability, leverage, risk, etc. when the dependent variable is *Eq_Avg_Restate* (*Vw_Avg_Restate*). In addition, I control for the size of a portfolio (*Portfolio_size)* and include industry and year fixed effect. Standard errors are clustered at the portfolio level.[34]

Table 7 presents the results. In all model specifications, the coefficients are negative and significant. Overall, the results suggest that greater use of the same auditor is positively associated with portfolio-level audit quality.

[33] Statistical inference does not alter when I use an OLS regression.
[34] I exclude portfolios that are composed of less than 3 investees to measure the degree of auditor sharing more accurately.

6.3. Audit Efficiency

Next, I consider whether commonly owned companies' use of the same auditor is associated with audit costs. Ex-ante, the prediction is unclear. On the one hand, the use of the same auditor may result in higher audit fees. In theory, audit fees reflect audit effort and a risk premium (Simunic and Stein 1996). Moreover, audit fees are significantly associated with higher audit quality (Aobdia 2019). Therefore, if auditors with incentives to provide high-quality audits to commonly owned clients increase their effort level, commonly owned companies' use of the same auditor may be associated with higher audit fees.

On the other hand, shared auditors may charge lower audit fees to commonly owned companies. As economic agents ensuring the reliability of financial statements that are prepared by management, if auditors better understand the preferences of common shareholders of their clients, audit process may become more efficient, which results in lower fees. In addition, common-ownership network level importance can increase the negotiation power of commonly owned companies, which can result in lower audit fees.

I investigate these arguments by replacing AQ_{jt} with Ln_Audfee_{jt} in equation (6). Table 8, Models 1-3 present the results. I find that the coefficients are negative and significant at the 1% level in all specifications. To further investigate whether the negative association is partly driven by increased audit efficiency due to commonly owned clients' use of the same auditor, I also test audit report lag as a proxy for audit efficiency. In Models 4-6, I find that an auditor's reporting processes are shorter for

commonly owned clients. Overall, the results imply that commonly owned companies' use of the same auditor may be beneficial to common owners in terms of audit efficiency or costs.

6.4. Comparability

I posit that common owners also benefit from greater comparability when their investees use the same auditor. In this section, I consider whether the use of the same auditor actually is associated with greater comparability among commonly owned investees. Following Francis et al. (2014) and Ege et al. (2019), I run a following regression for commonly-owned company pairs:

$$Diff\_ACC_{jkt} = \beta_0 + \beta_1 Same\_Aud_{jkt} + \sum \gamma \times Controls_{jkt} + \alpha_f + \alpha_t + \varepsilon_{jkt}, \quad (8)$$

where *j* and *k* denote two companies in a pair that have at least one common owner and *t* denotes year, respectively. The dependent variable $Diff\_ACC_{jkt}$ is one of the three measures of comparability: the absolute value of the difference in total accruals, abnormal accruals, and current accruals ($Diff\_TACC_{jkt}$, $Diff\_DACC_{jkt}$, and $Diff\_CACC_{jkt}$). Smaller difference in accruals between two companies imply greater accounting comparability. The variable of interest is $Same\_Aud_{jkt}$. Following Francis et al. (2014), I include control variables that capture various pair-specific characteristics, including differences and minimum of size, leverage, market-to-book, cash flows, losses, etc. Industry and year fixed effects are included.

Untabulated test results are consistent with the prediction that commonly owned companies have greater comparability when they use the same auditor.[35] Overall, the results suggest that common owners also have incentives to use the same auditor for their investees because it helps improve comparability on average.

6.5. Cross-sectional Analyses

6.5.1. Activist Blockholders

Next, I investigate whether the impact of common ownership on auditor choice differs depending upon the types of institutional blockholders. Specifically, I examine whether the common ownership created by activist institutions has a stronger association with investees' auditor-sharing likelihood. Although I predict that all types of common owners have similar incentives with respect to investees' auditor choice, activist institutions may have stronger abilities to influence the auditor choice. I manually match the 13F institutions with the 13D filers in my sample period and define activist institutional blockholders as the ones that filed at least one 13D, following He and Huang (2017).[36] In my sample, out of company pairs that have at least one common owner, 52.2% of pairs have common ownership that is created by activist institutions.

After classifying institutional types, I construct two separate common ownership measures: one that is created by activist institutions and the other created by nonactivist

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[35] Specifically, the coefficients on *Same_Aud* are -0.0009 (*t-value*: -1.88), -0.0122 (*t-value*: -2.26), -0.0010 (*t-value*: -3.20) and the median values of the three comparability measures are 0.067, 0.150, and 0.041 for *Diff_TACC*, *Diff_DACC*, and *Diff_CACC*, respectively. Therefore, the coefficients on *Same_Aud* per each model represent 1.5% – 7.3% of the median comparability measures.

[36] Every investor that acquires 5% of a company's shares is required to file a beneficial ownership filing (13D or 13G). If the investor intends to engage in active intervention, it must file a 13D.

institutions, *Cown_13d* and *Cown_no13d*, respectively. The results in Table 9, Panel A show that the coefficients on both *Cown_no13d* and *Cown_13d* are positive and significant. However, the test for differences reveals that the coefficients on *Cown_13d* are statistically more positive at 1 % level (untabulated). Overall, the results are consistent with common owners that have greater abilities more strongly affecting investees' choice of the same auditor.

6.5.2. CEO Insider Ownership

I posit that a company is more likely to share its auditor with commonly owned companies because doing so provides common owners with some benefits. An important assumption in this argument is that companies would act in the interest of common owners. However, companies may not choose to do so when the interests of other major stakeholders differ from the interests of common owners.[37] Therefore, in this section, I explore whether there exist heterogeneous interests between common owners and other stakeholders related to auditor-sharing decisions and examine how the conflicts of interests moderate my main finding.

If a company's auditor sharing with other commonly owned companies results in higher audit quality and greater comparability, the company's outside shareholders that

37 After recent academic studies argued that common ownership has a negative impact on product market competition, some critics such as defendants of the industry's position claimed that managers do not have an incentive to reduce competition even though reduced competition may be in common owners' interests (Schmalz 2017). In other words, they claim that common ownership is not likely to result in anti-competitive behaviors due to conflicts of interests between managers and common owners. However, Anton et al. (2018) show that common ownership is negatively associated with the sensitivity between firm performance and top managers' wealth. The finding indicates that executive compensation structure is designed to reflect common owners' incentives to reduce competition.

do not own other companies are also likely to favor the auditor-sharing decision. In other words, the interests of common owners and other outside shareholders are likely to be aligned. However, when managers hold the equity of their companies (i.e., insider ownership), the managers' interests may deviate from common owners'. For example, managers with insider ownership may have an incentive to manage earnings to increase stock prices (Cohen, Dey, and Lys 2008). Also, they may want to avoid increased monitoring because common owners' monitoring may deter managerial rent-seeking behavior. Therefore, they may not prefer high-quality audits and greater comparability resulting from the auditor sharing. In addition, if a manager's insider ownership is material (e.g., greater than 5%), the relative influence of common owners regarding the company's auditor choice is likely to decrease. Accordingly, I investigate whether a company's decision to share the auditor with commonly owned companies depends upon managerial insider ownership.

First, I collect CEO's stock ownership excluding options from Execucomp. Because I examine whether a single company's material CEO ownership affects its likelihood of sharing the auditor with commonly owned companies, I use auditor switcher – non-switcher sample pairs (Models 4 – 6 in Table 3) and focus on auditor switching companies' insider ownership. I define *H_CEO_own* as 1 if a company's CEO holds more than 5% of outstanding stocks in a given year.[38] The main result in Table 3 indicates that a company that switches its auditor is more likely to hire the auditor so that

[38] I lose some observations for which Execucomp does not provide CEO ownership data. In my reduced sample, 19.4% of companies have CEOs with more than 5% of stock ownership.

they share the auditor with commonly owned companies. I expect this association to be less pronounced when an auditor-switching company has material insider ownership. I test this by including *H_CEO_own* and its interaction with common ownership measures in equation (2).

Table 9, Panel B presents the result. The coefficients on *H_CEO_own* are negative and significant, which implies that companies with material insider ownership are less likely to hire the auditor that are used by non-commonly owned industry peer companies. This can be explained by the fact that CEOs holding their companies' shares may be more concerned about common agency problems such as information leakage. More importantly, the coefficients on *H_CEO_own X Cown* are negative, and the sums of the coefficients on *Cown* and *H_CEO_own X Cown* are not significantly different from zero. Consequently, for companies with material CEO ownership, common ownership is not associated with auditor-sharing likelihood due to heterogeneous interests between managers and common owners and relatively weakened influence of common owners.

6.6. Shared Audit Committee Members

Although I find that common owners' incentives affect their investees' auditor choices, it is unclear how common owners affect the choice of auditors. One possible channel through which common owners may affect the choice of auditor is hiring the same audit committee members. Audit committees are responsible for assessing the quality of auditors, compensating auditors, and deciding whether to retain current auditors. If commonly owned companies hire the same audit committee members,

common owners may affect the choice of auditors through shared audit committee members. In this section, I investigate whether companies that have common ownership are more likely to have the same audit committee members. I test this by replacing a dependent variable in equation (2) with *Shared_Audcom* that is coded 1 if two companies in a pair have at least one audit committee members.[39]

Table 10 presents the result. I find that all three common ownership measures are positively associated with the likelihood of having the same audit committee members. When I include *Shared_Audcom* as a covariate in equation (2), I find that auditor-sharing likelihood is positively associated with *Shared_Audcom* and the coefficients on common ownership measures are still significant (untabulated). Although hiring the same audit committee members is not the only channel through which common owners affect the auditor choice, the results suggest that shared audit committee members are one potential channel.

6.7. Robustness Checks

In Table 11, I show that the main results are robust to using various subsamples. First, because companies with similar size may attract the same blockholders and may use the same auditor, I examine pairs of companies whose asset sizes are similar in Panel A. Specifically, I include company pairs where a company's asset size is within [75%, 125%] of the other company's size. I find similar results among size-matched company pairs. Although company size is known to be one important determinant of auditor

[39] The inference does not alter when I use the number of shared audit committee members instead of *Shared_Audcom*.

choice, there is no perfect way to match on size. Therefore, in untabulated tests, I examine pairs of companies that have similar observable characteristics and find the inference does not alter.[40]

Next, I use 4-digit SIC code to define same-industry company pairs instead of Fama French 48 in Panel B. The inference remains the same for this alternative industry definition. In Panel C, I exclude companies that use industry-specialist auditors.[41] Institutional investors may induce companies to use industry-specialist auditors (i.e., high-quality auditors), which can lead to a positive association between common ownership and shared auditor. In this analysis, by excluding industry-specialist auditors, I show that the purpose of using the same auditor is not just to exploit auditors' industry expertise. I find that the results are robust.

Lastly, in Panel D, I additionally control for product market similarity (Hoberg and Phillips 2010, 2016).[42] To the extent that common owners invest in companies that have higher product market similarity or common owners induce investees to produce

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[40] First, following Lawrence, Minutti-Meza, and Zhang (2011), I regress Big 4 dummy on size, ROA, leverage, current ratios, asset turnover, capital intensity, growth rate, and MTB using a probit regression. Then, I calculate a predicted probability of hiring Big 4 auditors for each company (i.e., propensity score). Lastly, for each company-year, I find 5 peer companies that have the closest predicted values and create 5 pairs. This process enables me to construct pairs in which two companies have similar observable characteristics. Results are robust to using 1:3 or 1:1 matching. Second, I find results are similar when I examine pairs of companies whose headquarters are located in the same metropolitan statistical areas (MSA). Third, in addition to constructing pairs based on client characteristics, I limit my analyses to company pairs that use Big 4 auditors and pairs that use non-Big 4 auditors separately and find similar results. In addition, the association between common ownership and investees' use of the same auditor is stronger for companies that use non-Big 4 auditors, consistent with higher auditor monitoring incentives.

[41] I tabulate the results where industry-specialist auditors are defined at the firm level. However, the results are similar when industry expertise is measured at the office level.

[42] I thank Gerard Hoberg and Gordon Phillips for providing access to their measures of product market similarity.

similar products, my inference can be attributable to a positive association between product market similarity and auditor-sharing likelihood (Bills et al. 2020). Consistent with Bills et al. (2020), product market similarity is positively associated with the likelihood of using the same auditor. However, common ownership is still significant after controlling for similarity.[43]

[43] I do not control for product market similarity in the main model because I lose many observations with missing values of product market similarity. However, when I include similarity in the main model by replacing missing values with zero and include an indicator variable for pairs with missing values, inference does not change (untabulated).

7. CONCLUSION

In recent decades, U.S. public companies' interconnectedness through common institutional ownership has increased. Although many have assumed that shareholders' objective is to maximize the value of the company, the objective of common owners is likely to be different because they prefer portfolio value maximization. In particular, when a company's action affects the value of other companies, common owners of these companies are incentivized to internalize such externalities. Consistent with this notion, studies provide evidence that common ownership leads to lower competition, stronger governance over management, and increased disclosures (e.g., Azar et al. 2018; He et al. 2019; Park et al. 2019). My study investigates how the common owners' incentives affect investees' auditor choice decisions and ultimately the financial reporting outcome.

I argue that common owners would induce their investees to use the same auditor for various reasons. First, the use of the same auditor helps common owners to more effectively monitor the work of the auditor, which in turn increases the audit quality of their investees. Given that low-quality auditing can result in portfolio value loss due to restatement contagion effects, common owners have incentives to use the same auditor for their investees. Second, the use of the same auditor improves accounting comparability among investees, which helps common owners to assess the performance of investees better. Third, common agency problems that may arise when multiple companies share the same auditor can be mitigated through common ownership.

Consistent with my expectation, I find that common ownership is associated with the likelihood of sharing the same auditor. To address endogeneity concern, I employ a changes-on-changes specification and a difference-in-differences design and find that the results are consistent. Next, I provide evidence that the use of the same auditor helps common owners to monitor the auditor better, which motivates auditors to provide higher quality audits to commonly owned clients. Cross-sectional analyses confirm that common ownership is more strongly associated with the choice of sharing auditors when common owners have stronger incentives and abilities. Overall, the findings help us to understand how a recently growing ownership structure, common ownership, affects the financial reporting through the choice of auditor.

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APPENDIX A

VARIABLE DEFINITION

D_COwn_{jkt}	$= \frac{1}{4}\sum_{q=1}^{4} D\_COwn_{jkq}$, where D_COwn_{jkq} is coded 1 if company *j* and company *k* at quarter *q* have at least one common blockholder, and 0 otherwise.
N_COwn_{jkt}	$= \frac{1}{4}\sum_{q=1}^{4} N\_COwn_{jkq}$, where N_COwn_{jkq} is the number of common blockholders that company *j* and company *k* have at quarter *q*.
$\%\_COwn_{jkt}$	$= \frac{1}{4}\sum_{q=1}^{4} \%\_COwn_{jkq}$, Where $\%\_COwn_{jkq}$ is the percentage of company *j* and *k*'s total market value of equity that is held by their common blockholders at quarter *q*. Specifically, $$\%\_COwn_{jkq} = \frac{\sum_{i=1}\left(MVE_{jq}^{i} + MVE_{kq}^{i}\right)}{MVE_{jq} + MVE_{kq}}$$ *i* denotes company *j* and *k*'s common blockholder. MVE_{jq} is the market value of equity of company *j* at quarter *q* and MVE_{jq}^{i} is the market value of equity of company *j* that is held by blockholder *i*.
$Same\_Aud_{jkt}$	= 1, if company *j* and *k* use the same audit firm at year *t*, and 0 otherwise.
Avg_Size_{jkt}	$= Avg(Size_{jt}, Size_{kt})$, where $Size_{jt}$ is the natural logarithm of company *j*'s total assets at year *t*.
$Diff\_Size_{jkt}$	$= \left\lvert Size_{jt} - Size_{kt} \right\rvert$
$Diff\_ROA_{jkt}$	$= \left\lvert ROA_{jt} - ROA_{kt} \right\rvert$, where ROA_{jt} is company *j*'s return on assets (income before extraordinary items scaled by lagged total assets) at year *t*.
$Diff\_Lev_{jkt}$	$= \left\lvert Lev_{jt} - Lev_{kt} \right\rvert$, where Lev_{jt} is company *j*'s leverage ratio (debt-to-asset ratio) at year *t*.
$Diff\_Curr_{jkt}$	$= \left\lvert Curr_{jt} - Curr_{kt} \right\rvert$, where $Curr_{jt}$ is company *j*'s current ratio (current assets divided by total assets) at year *t*.
$Diff\_Aturn_{jkt}$	$= \left\lvert Aturn_{jt} - Aturn_{kt} \right\rvert$, where $Aturn_{jt}$ is company *j*'s asset turnover ratio (sales divided by lagged total assets) at year *t*.

$Diff\_Capint_{jkt}$ = $\left|Capint_{jt} - Capint_{kt}\right|$,

where $Capint_{jt}$ is company *j*'s capital intensity (property, plant, and equipment divided by lagged total assets) at year *t.*

$Diff\_MTB_{jkt}$ = $\left|MTB_{jt} - MTB_{kt}\right|$,

where MTB_{jt} is company *j*'s market-to-book ratio at year *t.*

$Diff\_Growth_{jkt}$ = $\left|Growth_{jt} - Growth_{kt}\right|$,

where $Growth_{jt}$ is company *j*'s sales growth rate at year *t.*

$Diff\_financing_{jkt}$ = $\left|financing_{jt} - financing_{kt}\right|$,

where $financing_{jt}$ is the sum of new long-term debt and new equity divided by total assets of company *j* at year *t.*

$Diff\_Busseg_{jkt}$ = $\left|Busseg_{jt} - Busseg_{kt}\right|$,

where $Busseg_{jt}$ is natural logarithm of the number of business segments of company *j* at year *t.*

$Diff\_Ret_{jkt}$ = $\left|Ret_{jt} - Ret_{kt}\right|$,

where Ret_{jt} is 12-month cumulative returns of company *j* at year *t.*

$Diff\_Recinv_{jkt}$ = $\left|Recinv_{jt} - Recinv_{kt}\right|$,

Where $Recinv_{jt}$ is the sum of accounts receivable and inventory, scaled by total assets.

$Diff\_Altman_{jkt}$ = $\left|Altman_{jt} - Altman_{kt}\right|$,

Where $Altman_{jt}$ is company *j*'s Altman's z-score at year *t.*

$Diff\_Loss_{jkt}$ = $\left|Loss_{jt} - Loss_{kt}\right|$,

where $Loss_{jt}$ is coded 1 if company *j*'s ROA is less than zero at year *t.*

$Diff\_DACC_{jkt}$ = $\left|DACC_{jt} - DACC_{kt}\right|$,

Discretionary accruals (*DACC*) are measured as the residual of the following industry-year level accruals estimation model (Kothari, Leone, and Wasley 2005) as follows:

$$TACC_{jt} = \beta_0 + \beta_1 \frac{1}{Asset_{jt-1}} + \beta_2\left(\Delta Sales_{jt} - \Delta AR_{jt}\right) + \beta_3 PPE_{jt} + \beta_4 ROA_{jt}$$

$Asset_{jt-1}$ is company *j*'s total assets, $\Delta AR_{jt}$is change in accounts receivable. $TACC_{jt}$, $\Delta Sales_{jt}$, ΔAR_{jt}, and PPE_{jt} are scaled by lagged total assets.

$Same\_State_{jkt}$ = 1, if company *j* and *k* are headquartered in the same state at year *t*, and 0 otherwise.

$\Delta Same\_Aud_{jkt+1}$ = $Same\_Aud_{jkt+1} - Same\_Aud_{jkt}$

Aud_Switch_{jt+1} = 1, if company *j* switches its auditor from year *t* to *t*+1, and 0 otherwise.

$Votes\_against_{jt}$	The percentage of votes against the auditor of company *j* at year *t*.
$AVG\_COwn\_Res_{jt}$	$= \frac{1}{K}\sum_{k=1}^{K} COwn_{jkt}$, where $COwn_{jkt}$ is the three common ownership measures between company *j* (focal company) and its shared-auditor same-industry companies *k* that announce restatements at year *t*.
AVG_COwn_{jt}	$= \frac{1}{K}\sum_{k=1}^{K} COwn_{jkt}$, Where $COwn_{jkt}$ is the three common ownership measures between company *j* (focal company) and its shared-auditor same-industry companies *k* at year *t*.
Restate	= 1, if company *j*'s financial statements at year *t* are restated, and 0 otherwise.
Accruals quality	The standard deviation of a company's residuals (from years *t*-4 to *t*) from industry-year level estimations of the modified Dechow and Dichev (2002) model, as follows: $$CACC_{jt} = \beta_0 + \beta_1 CFO_{jt-1} + \beta_2 CFO_{jt} + \beta_3 CFO_{jt+1} + \beta_4 \Delta Sales_{jt} + \beta_5 PPE_{jt}$$ $CACC_{jt}$ is current accruals (change in current assets from *t*-1 to *t*, minus change in current liabilities from *t*-1 to *t*, minus change in cash from *t*-1 to *t*, plus change in debt in current liabilities from *t*-1 to *t*), CFO_{jt} is cash flow from operations, $\Delta Sales_{jt}$ is change in sales from *t*-1 to *t*, and PPE_{jt} is gross property, plant, and equipment. All variables are scaled by lagged total assets. I multiply negative one so that higher value captures higher implied audit quality.
ABS_DACC	Absolute value of discretionary accruals.
Foreign_Sales	Sales from foreign countries divided by total sales.
Inst_Own	Institutional ownership (percentage of shares owned by institutional investors)
Block	= 1 if there exists at least one blockholder, 0 otherwise.
ln_aud_fee	Natural logarithm of audit fees.
GC	= 1 if the auditor issues a going concern opinion, 0 otherwise.
Eq_Avg_Restate	A portfolio's restatement probability defined as the equal-weighted average of individual company's restatement likelihood.
Vw_Avg_Restate	A portfolio's restatement probability defined as the value-weighted average of the individual company's restatement likelihood. I use each company's market value of equity that is managed by the portfolio manager (institution) as a weight.
HHI_Aud_comp	Herfindahl-Hirschman index that captures how concentrated the use of auditors is within a portfolio. The number of clients is used as a weight.
HHI_Aud_mve	Herfindahl-Hirschman index that captures how concentrated the use of auditors is within a portfolio. The market value of equity of clients is used as a weight.
HHI_Aud_fee	Herfindahl-Hirschman index that captures how concentrated the use of auditors is within a portfolio. The audit fee of clients is used as a weight.

Portfolio_size	$= \sum_{j=1} MVE_{jt}^{i}$ Total market value of the portfolio that blockholder *i* manages. *j* denotes a company in the portfolio. MVE_{jt}^{i} is the company *j*'s market value of equity held by blockholder *i*.
Ln_Audfee	Natural logarithm of audit fees
Ln_Report_lag	Natural logarithm of (1+audit report lag)
$Cown\_13d_{jkt}$	Common ownership between company *j* and *k* that is created by activist blockholders.
$Cown\_no13d_{jkt}$	Common ownership between company *j* and *k* that is created by non-activist blockholders.
H_CEO_own	= 1 if a company's CEO holds more than 5% of the company's shares at year *t*.
$Shared\_Audcom_{jkt}$	= 1, if company *j* and *k* share at least one audit committee members at year *t*.
$Similarity_{jkt}$	Pair-level product market similarity between company *j* and *k* at year *t*, obtained from: http://hobergphillips.usc.edu/industryclass.htm (Hoberg and Phillips 2010, 2016)

APPENDIX B

NUMERICAL EXAMPLE OF COMMON OWNERSHIP MEASURES

I construct common ownership measures following prior studies (Anton et al. 2018; Anton and Polk 2014). In the appendix, I provide a numerical example of common ownership measures using five hypothetical companies that are in the same industry.

Table B1 provides the market value of equity (MVE) and blockholders' percentage share information for the five companies. For example, company A's market value of equity is $100, and Company A's blockholders are I1, I2, and I3 with percentage shares 10%, 10%, and 7%, respectively.

Table B1 presents pair-level common ownership measures (D_Cown_{jk}, N_Cown_{jk}, $\%\_Cown_{jk}$) between two focal companies A and C with other companies. D_Cown between company A and B is 1 because A has at least one blockholder that also blockhold company B's shares. N_Cown between company A and B is 2 because A has two blockholders I2 and I3 that blockhold company B's shares. Lastly, $\%\_Cown$ between company A and B is 0.174 because A and B's common blockholders (I2 and I3) own 17.4% ($\frac{(10+6.4)+(7+8)}{180}$) of company A and B's total market value of equity. Pair-level common ownership measures between company C and B are 0.000 because C and B do not have any common blockholder. After calculating pair-level common ownership measures at each quarter-end, I take the average to calculate pair-year level measures.

Table B1 Pair-level Common Ownership Measures

Company	**A**	**B**	**C**	**D**	**E**
MVE	100	80	120	150	40
Blockholders and their % shares					
I1	10%				
I2	10%	8%		5%	
I3	7%	10%			6%
I4				10%	12%
I5			10%	5%	
Pair-level common ownership between A and other companies					
D_Cown	-	1.000	0.000	1.000	1.000
N_Cown	-	2.000	0.000	1.000	1.000
%_Cown	-	0.174	0.000	0.070	0.067
Pair-level common ownership between C and other companies					
D_Cown	0.000	0.000	-	1.000	0.000
N_Cown	0.000	0.000	-	1.000	0.000
%_Cown	0.000	0.000	-	0.070	0.000

Table 1 Descriptive Statistics and Univariate Analysis

Panel A. Descriptive statistics for companies

	N	Mean	Med	Std Dev	P10	P90
Size	49,173	6.01	5.93	2.08	3.31	8.81
ROA	49,173	-0.04	0.03	0.27	-0.32	0.14
LEV	49,173	0.22	0.17	0.22	0.00	0.51
MTB	49,173	2.96	2.04	4.80	0.64	6.44
Curr	49,173	0.51	0.51	0.25	0.15	0.85
Capint	49,173	0.53	0.40	0.44	0.09	1.16
Aturn	49,173	1.14	0.95	0.88	0.25	2.28
Altman	49,173	3.68	2.88	6.50	-0.67	9.19
Growth	49,173	0.15	0.06	0.52	-0.20	0.45
Financing	49,173	0.23	0.04	0.50	0.00	0.64
Foreign_Sales	49,173	0.20	0.04	0.26	0.00	0.61
N_Buss	49,173	1.98	1.00	1.48	1.00	4.00
Inst_Own	49,173	0.54	0.60	0.33	0.05	0.96
Block	49,173	0.78	1.00	0.42	0.00	1.00
Restate	49,173	0.12	0.00	0.32	0.00	1.00
Switch	49,173	0.07	0.00	0.26	0.00	0.00
Votes_against	19,037	0.02	0.01	0.04	0.00	0.04
ln_aud_fee	48,468	13.49	13.50	1.32	11.76	15.21
Accruals_quality	42,448	-0.35	-0.16	0.53	-0.84	-0.03
ABS_DACC	40,416	0.08	0.05	0.10	0.01	0.18
Report_lag	49,172	63.31	60.00	30.26	39.00	86.00
GC	49,173	0.04	0.00	0.19	0.00	0.00

Table 1. Continued

Panel B. Descriptive statistics for company pairs

	Total Pairs				No common owner			>= 1 common owner		
	N	Mean	Med	Std Dev	N	Mean	Med	N	Mean	Med
Same_Aud	3,158,133	0.16	0.00	0.37	2,663,148	0.15	0.00	494,985	0.21	0.00
D_Cown	3,158,133	0.16	0.00	0.36	2,663,148	0.00	0.00	494,985	1.00	1.00
N_Cown	3,158,133	0.21	0.00	0.53	2,663,148	0.00	0.00	494,985	1.34	1.00
%_Cown	3,158,133	0.02	0.00	0.04	2,663,148	0.00	0.00	494,985	0.11	0.09
AVG_Size	3,158,133	5.62	5.58	1.53	2,663,148	5.40	5.25	494,985	6.79	6.72
Diff_Size	3,158,133	2.10	1.80	1.61	2,663,148	2.19	1.78	494,985	1.64	1.35
Diff_ROA	3,158,133	0.30	0.15	0.56	2,663,148	0.33	0.17	494,985	0.17	0.08
Diff_Lev	3,158,133	0.22	0.16	0.24	2,663,148	0.22	0.15	494,985	0.21	0.15
Diff_Curr	3,158,133	0.25	0.21	0.19	2,663,148	0.26	0.22	494,985	0.23	0.19
Diff_Aturn	3,158,133	0.81	0.55	0.87	2,663,148	0.84	0.55	494,985	0.69	0.42
Diff_Capint	3,158,133	0.33	0.21	0.35	2,663,148	0.33	0.21	494,985	0.31	0.20
Diff_MTB	3,158,133	5.63	1.91	14.82	2,663,148	5.69	1.96	494,985	5.33	1.65
Diff_Growth	3,158,133	0.66	0.25	1.87	2,663,148	0.70	0.27	494,985	0.45	0.17
Diff_Financing	3,158,133	0.44	0.13	1.52	2,663,148	0.46	0.13	494,985	0.33	0.11
Diff_Busseg	3,158,133	0.55	0.61	0.58	2,663,148	0.55	0.55	494,985	0.60	0.66
Diff_Ret	3,158,133	0.64	0.42	0.80	2,663,148	0.67	0.44	494,985	0.47	0.33
Diff_Recinv	3,158,133	0.17	0.12	0.15	2,663,148	0.17	0.13	494,985	0.14	0.10
Diff_Altman	3,158,133	7.49	3.83	11.14	2,663,148	7.87	4.19	494,985	5.41	2.74
Diff_Loss	3,158,133	0.44	0.00	0.50	2,663,148	0.46	0.00	494,985	0.37	0.00
Diff_DACC	3,158,133	0.50	0.20	1.23	2,663,148	0.52	0.21	494,985	0.41	0.15
Same_state	3,158,133	0.11	0.00	0.32	2,663,148	0.11	0.00	494,985	0.13	0.00

Table 2 Common Ownership and Same Auditor

	Same_Aud					
	All pairs			Auditor switcher - Non-switcher		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
D_Cown	0.033***			0.039***		
	(9.04)			(5.18)		
N_Cown		0.023***			0.032***	
		(10.05)			(5.77)	
%_Cown			0.279***			0.382***
			(8.86)			(5.45)
AVG_Size	0.039***	0.039***	0.040***	0.042***	0.042***	0.042***
	(20.61)	(21.04)	(21.15)	(38.63)	(39.90)	(39.94)
Diff_Size	-0.017***	-0.017***	-0.017***	-0.021***	-0.021***	-0.021***
	(-18.33)	(-18.93)	(-18.50)	(-21.68)	(-21.85)	(-21.67)
Diff_ROA	0.001	0.001	0.001	-0.001	-0.001	-0.001
	(0.50)	(0.46)	(0.49)	(-0.44)	(-0.46)	(-0.45)
Diff_Lev	-0.001	-0.001	-0.001	0.002	0.002	0.002
	(-0.71)	(-0.71)	(-0.72)	(0.46)	(0.42)	(0.43)
Diff_Curr	0.009	0.010	0.009	0.004	0.004	0.004
	(1.53)	(1.53)	(1.52)	(0.88)	(0.88)	(0.89)
Diff_Aturn	-0.002*	-0.002*	-0.002*	-0.000	-0.000	-0.000
	(-1.81)	(-1.83)	(-1.85)	(-0.23)	(-0.22)	(-0.23)
Diff_Capint	-0.010*	-0.010*	-0.010*	-0.003	-0.003	-0.003
	(-1.98)	(-1.96)	(-1.97)	(-0.69)	(-0.69)	(-0.68)
Diff_MTB	0.000***	0.000***	0.000***	0.000	0.000	0.000
	(5.88)	(5.88)	(5.91)	(0.49)	(0.49)	(0.49)
Diff_Growth	0.001	0.001	0.001	0.001***	0.001***	0.001***
	(0.66)	(0.65)	(0.65)	(2.84)	(2.79)	(2.80)
Diff_Financing	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001
	(-1.44)	(-1.44)	(-1.45)	(-1.67)	(-1.67)	(-1.67)
Diff_Busseg	-0.013***	-0.013***	-0.013***	-0.007**	-0.007**	-0.007**
	(-3.71)	(-3.71)	(-3.72)	(-2.39)	(-2.37)	(-2.37)
Diff_Ret	0.001	0.001	0.001	-0.000	-0.000	-0.000
	(0.91)	(0.87)	(0.85)	(-0.12)	(-0.11)	(-0.14)
Diff_Recinv	-0.058***	-0.059***	-0.058***	-0.018	-0.018	-0.018
	(-6.26)	(-6.22)	(-6.27)	(-1.43)	(-1.42)	(-1.42)
Diff_Altman	0.000	0.000	0.000	0.000***	0.000***	0.000***
	(1.21)	(1.21)	(1.20)	(3.95)	(3.91)	(3.92)
Diff_Loss	-0.002	-0.002	-0.002	-0.003	-0.003	-0.003
	(-0.68)	(-0.66)	(-0.68)	(-1.18)	(-1.16)	(-1.16)
Diff_DACC	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-1.13)	(-1.15)	(-1.15)	(-0.67)	(-0.67)	(-0.67)
Same_State	0.032***	0.032***	0.032***	0.016***	0.016***	0.016***
	(2.85)	(2.85)	(2.85)	(5.33)	(5.32)	(5.32)
Industry, Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	3,158,133	3,158,133	3,158,133	396,154	396,154	396,154
Adj. R^2	0.037	0.037	0.037	0.062	0.062	0.062

This table presents regression results using the likelihood of sharing the same auditor as the dependent

variable. The three test variables are the existence of common owner (*D_Cown*), the number of common owners (*N_Cown*), and the percentage of equity owned by common owners (*%_COwn*) between same-industry company pairs, respectively. Models 1–3 examine all same-industry company pairs, and Models 4–6 examine same-industry pairs of auditor-switching company and non-switching company. Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 3 Change in Common Ownership and Auditor Choice

	Δ*Same_Aud*		
	Model 1	Model 2	Model 3
Δ*D_Cown*	0.004***		
	(3.09)		
Δ*N_Cown*		0.004***	
		(3.54)	
Δ*%_Cown*			0.044***
			(4.04)
Δ*AVG_Size*	0.019***	0.019***	0.019***
	(6.54)	(6.54)	(6.54)
Δ*Diff_Size*	-0.005***	-0.005***	-0.005***
	(-7.06)	(-7.01)	(-7.03)
Δ*Diff_ROA*	-0.007***	-0.007***	-0.007***
	(-3.90)	(-3.90)	(-3.90)
Δ*Diff_Lev*	0.000	0.000	0.000
	(0.20)	(0.20)	(0.20)
Δ*Diff_Curr*	-0.002	-0.002	-0.002
	(-0.98)	(-0.98)	(-0.99)
Δ*Diff_Aturn*	-0.001	-0.001	-0.001
	(-1.52)	(-1.52)	(-1.52)
Δ*Diff_Capint*	-0.004**	-0.004**	-0.004**
	(-2.53)	(-2.53)	(-2.52)
Δ*Diff_MTB*	0.000	0.000	0.000
	(0.67)	(0.66)	(0.66)
Δ*Diff_Growth*	-0.000	-0.000	-0.000
	(-1.42)	(-1.43)	(-1.42)
Δ*Diff_Financing*	0.000	0.000	0.000
	(0.18)	(0.18)	(0.18)
Δ*Diff_Busseg*	0.001	0.001	0.001
	(0.68)	(0.68)	(0.68)
Δ*Diff_Ret*	-0.001*	-0.001*	-0.001*
	(-1.87)	(-1.87)	(-1.88)
Δ*Diff_Recinv*	-0.007	-0.007	-0.007
	(-1.48)	(-1.48)	(-1.49)
Δ*Diff_Altman*	-0.000	-0.000	-0.000
	(-0.62)	(-0.62)	(-0.63)
Δ*Diff_Loss*	0.001	0.001	0.001
	(1.53)	(1.52)	(1.52)
Δ*Diff_DACC*	-0.000	-0.000	-0.000
	(-0.53)	(-0.53)	(-0.53)
Industry, Year FE	Yes	Yes	Yes
N	1,879,639	1,879,639	1,879,639
Adj. R^2	0.006	0.006	0.006

This table presents regression results using the changes in the likelihood of sharing the same auditor as dependent variables. $\Delta Same\_Aud_{jkt+1}$ is the change in the likelihood of using the same auditor from year *t* to *t*+1. The three test variables are the changes in the three common ownership measures (*D_Cown*, *N_Cown*, and *%_COwn*) from year *t-1* to *t* between same-industry company pairs, respectively. Detailed

definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 4 BlackRock's Acquisition of Barclays and Auditor Choice

	Same_Aud	
	Model 1	Model 2
Post	-0.006**	-0.002
	(-2.36)	(-1.43)
Treat	0.073***	
	(3.07)	
Post X Treat	0.056***	0.043*
	(3.11)	(1.99)
Controls	Yes	Yes
Industry FE	Yes	No
Company pair FE	No	Yes
N	373,147	373,147
Adj. R^2	0.040	0.891

This table presents regression results using the likelihood of sharing the same auditor as the dependent variable. *Post* is coded 1 after 2009, and 0 otherwise. *Treat* is coded 1 when two companies in a pair did not have common ownership created by either BlackRock or Barclays before the acquisition and became commonly blockheld by newly merged BlackRock after the acquisition. Model 1 includes industry fixed effects and Model 2 includes company pair fixed effects. Controls included in the main tests are included, but not tabulated for the sake of brevity. In Model 2, *Same_State* is excluded because it is perfectly collinear with pair dummies. Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 5 Monitoring of Auditors – Auditor Switch, Votes, and Audit Fees

	Aud_Switch_{jt+1}			$Votes\_against_{jt}$			Ln_audfee_{jt+1}		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
AVG_D_Cown_Res	0.014**			0.004***			-0.068***		
	(2.54)			(3.33)			(-3.66)		
AVG_N_Cown_Res		0.008**			0.003***			-0.046***	
		(2.25)			(4.06)			(-3.36)	
AVG_%_Cown_Res			0.089**			0.029***			-0.526***
			(2.08)			(3.27)			(-2.92)
Size	-0.023***	-0.023***	-0.023***	-0.001*	-0.001*	-0.001*	0.482***	0.481***	0.481***
	(-13.33)	(-13.32)	(-13.30)	(-1.91)	(-1.92)	(-1.83)	(70.47)	(70.48)	(70.50)
ROA	-0.001	-0.001	-0.001	-0.007***	-0.007***	-0.007***	-0.459***	-0.460***	-0.460***
	(-0.11)	(-0.12)	(-0.12)	(-3.06)	(-3.05)	(-3.05)	(-14.65)	(-14.66)	(-14.66)
LEV	0.015**	0.015**	0.015**	0.000	0.000	0.000	0.077**	0.077**	0.078**
	(2.16)	(2.14)	(2.13)	(0.10)	(0.08)	(0.05)	(2.18)	(2.19)	(2.21)
MTB	-0.001**	-0.001**	-0.001**	-0.000**	-0.000**	-0.000**	0.006***	0.006***	0.006***
	(-2.27)	(-2.30)	(-2.29)	(-2.24)	(-2.26)	(-2.24)	(5.92)	(5.95)	(5.94)
Curr	-0.022***	-0.022***	-0.022***	-0.003	-0.003	-0.003	0.103**	0.103**	0.103**
	(-2.79)	(-2.78)	(-2.78)	(-1.48)	(-1.45)	(-1.43)	(2.50)	(2.49)	(2.50)
Capint	-0.002	-0.002	-0.002	0.000	0.000	0.000	-0.144***	-0.145***	-0.145***
	(-0.57)	(-0.55)	(-0.55)	(0.19)	(0.20)	(0.21)	(-6.67)	(-6.68)	(-6.68)
Aturn	-0.001	-0.001	-0.001	0.002**	0.002**	0.002**	0.126***	0.126***	0.126***
	(-0.40)	(-0.40)	(-0.39)	(2.55)	(2.53)	(2.53)	(11.73)	(11.74)	(11.73)
Growth	-0.008**	-0.008**	-0.008**	-0.001**	-0.001**	-0.001**	-0.016**	-0.016**	-0.016*
	(-2.45)	(-2.45)	(-2.47)	(-2.44)	(-2.40)	(-2.43)	(-1.97)	(-1.98)	(-1.96)
Financing	-0.006*	-0.006*	-0.006*	-0.004***	-0.004***	-0.004***	-0.043***	-0.043***	-0.043***
	(-1.92)	(-1.92)	(-1.95)	(-5.22)	(-5.22)	(-5.27)	(-3.59)	(-3.61)	(-3.59)
Foreign_Sales	-0.003	-0.003	-0.003	0.006***	0.006***	0.006***	0.691***	0.691***	0.691***
	(-0.49)	(-0.49)	(-0.48)	(2.88)	(2.88)	(2.89)	(19.95)	(19.95)	(19.95)

Table 5. Continued

Busseg	-0.000	-0.000	-0.000	0.001***	0.001***	0.001***	0.060***	0.061***	0.060***
	(-0.60)	(-0.60)	(-0.59)	(2.83)	(2.84)	(2.86)	(12.10)	(12.10)	(12.10)
Inst_Own	-0.044***	-0.043***	-0.043***	-0.004*	-0.004**	-0.004*	0.018	0.019	0.018
	(-6.99)	(-6.85)	(-6.81)	(-1.87)	(-1.98)	(-1.82)	(0.56)	(0.60)	(0.58)
Block	-0.008	-0.007	-0.007	-0.001	-0.001	-0.001	-0.020	-0.022	-0.023
	(-1.64)	(-1.55)	(-1.52)	(-0.79)	(-0.64)	(-0.58)	(-1.35)	(-1.48)	(-1.53)
ln_aud_fee	0.017***	0.017***	0.017***	-0.001	-0.001	-0.001			
	(6.21)	(6.20)	(6.19)	(-0.83)	(-0.82)	(-0.83)			
GC	0.059***	0.059***	0.059***	0.012***	0.012***	0.012***	0.210***	0.211***	0.210***
	(3.71)	(3.70)	(3.70)	(3.74)	(3.73)	(3.74)	(6.43)	(6.44)	(6.43)
Aud X Ind X year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	31,136	31,136	31,136	12,033	12,033	12,033	29,023	29,023	29,023
Adj. R^2	0.308	0.308	0.308	0.052	0.052	0.051	0.829	0.829	0.829

This table presents regression results using non-restating company's reactions after its shared-auditor companies announce restatements as dependent variables. Aud_switch_{jt+1} is coded 1 if a company switches its auditor from year *t* to *t*+1, and 0 otherwise. $Votes\_against_{jt}$ is the percentage of votes against the current auditor at year *t*. Ln_audfee_{jt+1} is the natural logarithm of audit fees at year *t*+1. Sample construction process starts from 49,173 company-years that are used to create company pairs. I exclude observations in 2016 because I examine subsequent reactions at year *t*+1, exclude auditors that have less than 3 clients in a given industry and year, and exclude restating companies. When $Votes\_against_{jt}$ is used as a dependent variable, sample size becomes smaller because Audit Analytics provides auditor ratification results starting from 2010. When Ln_audfee_{jt+1} is used as a dependent variable, I exclude companies that switch auditors because I examine audit fees that are paid to the auditor of year *t* at year *t*+1. In other words, I use observations where the auditor of year *t*+1 is the same as the auditor of year *t*. The test variables are the averages of the three common ownership measures between a focal company and its shared-auditor companies that announce restatements at year *t* (*Avg_D_Cown_Res, Avg_N_Cown_Res,* and *Avg_%_Cown_Res*). Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the company level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 6 Common Ownership and Audit Quality

	Restate			*Accruals quality*			*ABS_DACC*		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
AVG_D_Cown	-0.03**			0.05*			-0.01***		
	(-2.10)			(1.80)			(-3.75)		
AVG_N_Cown		-0.03***			0.05***			-0.01***	
		(-2.86)			(2.80)			(-4.03)	
AVG_%_Cown			-0.31**			0.57***			-0.12***
			(-2.52)			(2.68)			(-4.25)
Size	0.00	0.00	0.00	0.01*	0.01*	0.01*	-0.00***	-0.00***	-0.00***
	(0.23)	(0.21)	(0.17)	(1.70)	(1.74)	(1.80)	(-9.14)	(-9.14)	(-9.25)
ROA	0.02	0.02	0.02	0.21***	0.21***	0.21***	-0.08***	-0.08***	-0.08***
	(1.40)	(1.39)	(1.39)	(6.53)	(6.54)	(6.54)	(-13.23)	(-13.23)	(-13.24)
Lev	0.05***	0.05***	0.05***	0.04	0.04	0.04	-0.01	-0.01	-0.01
	(3.41)	(3.41)	(3.43)	(1.46)	(1.45)	(1.43)	(-1.38)	(-1.37)	(-1.35)
MTB	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	0.00***	0.00***	0.00***
	(-2.76)	(-2.74)	(-2.75)	(-3.34)	(-3.36)	(-3.34)	(4.55)	(4.58)	(4.56)
Curr	-0.05***	-0.05***	-0.05***	-0.09***	-0.09***	-0.09***	0.03***	0.03***	0.03***
	(-3.29)	(-3.31)	(-3.30)	(-2.98)	(-2.95)	(-2.96)	(7.70)	(7.68)	(7.68)
Capint	-0.01*	-0.01*	-0.01*	0.03*	0.03*	0.03*	0.00	0.00	0.00
	(-1.85)	(-1.86)	(-1.87)	(1.69)	(1.71)	(1.71)	(0.90)	(0.88)	(0.88)
Aturn	0.01	0.01	0.01	0.03***	0.03***	0.03***	0.00***	0.00***	0.00***
	(1.43)	(1.44)	(1.44)	(3.49)	(3.48)	(3.48)	(3.25)	(3.25)	(3.26)
Altman	-0.00*	-0.00*	-0.00*	-0.00	-0.00	-0.00	-0.00*	-0.00*	-0.00*
	(-1.84)	(-1.85)	(-1.84)	(-0.64)	(-0.64)	(-0.63)	(-1.85)	(-1.86)	(-1.86)
Growth	0.00	0.00	0.00	-0.04***	-0.04***	-0.04***	0.02***	0.02***	0.02***
	(0.56)	(0.52)	(0.55)	(-4.75)	(-4.71)	(-4.72)	(10.26)	(10.25)	(10.25)

Table 6. Continued

Financing	0.01	0.01	0.01	-0.02**	-0.02**	-0.02**	0.03***	0.03***	0.03***
	(1.54)	(1.52)	(1.54)	(-2.20)	(-2.19)	(-2.20)	(13.29)	(13.31)	(13.31)
Foreign_sales	0.03**	0.03**	0.03**	0.02	0.02	0.02	-0.00	-0.00	-0.00
	(2.52)	(2.53)	(2.52)	(0.76)	(0.75)	(0.76)	(-1.08)	(-1.07)	(-1.09)
Busseg	0.00*	0.00*	0.00*	0.00	0.00	0.01	-0.00***	-0.00***	-0.00***
	(1.80)	(1.80)	(1.78)	(1.54)	(1.54)	(1.55)	(-3.49)	(-3.51)	(-3.52)
Inst_Own	0.04***	0.04***	0.04***	0.04*	0.04	0.04	0.00	0.00	0.00
	(3.11)	(3.36)	(3.27)	(1.94)	(1.57)	(1.52)	(0.49)	(0.55)	(0.74)
Block	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.01***	-0.01***	-0.01***
	(-0.45)	(-0.53)	(-0.58)	(-0.30)	(-0.26)	(-0.21)	(-2.98)	(-3.16)	(-3.20)
Aud X Ind X Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	43,472	43,472	43,472	38,810	38,810	38,810	36,902	36,902	36,902
Adj. R^2	0.041	0.041	0.041	0.293	0.293	0.293	0.278	0.278	0.278

This table presents regression results using audit quality proxies as dependent variables. *Restate* is coded 1 if a company's financial statements are restated subsequently, and 0 otherwise. *Accruals quality* is the standard deviation of a company's residuals from the industry-year level estimations of the modified Dechow and Dichev (2002) model. *ABS_DACC* is the absolute value of discretionary accruals that is measured as the residual of the industry-year level accruals estimation model (Kothari et al. 2005). Sample construction process starts from 49,173 company-years that are used to create company pairs. I exclude auditors that have less than 3 clients in a given industry and year. The test variables are the averages of the three common ownership measures between a focal company and its shared-auditor companies (*Avg_D_Cown, Avg_N_Cown,* and *Avg_%_Cown*). Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the company level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 7 Portfolio-level Audit Quality

	Eq_Avg_Restate			*Vw_Avg_Restate*		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
HHI_Aud_comp	-0.366**			-0.500**		
	(-2.14)			(-2.20)		
HHI_Aud_mve		-0.205*			-0.465***	
		(-1.87)			(-3.23)	
HHI_Aud_fee			-0.402***			-0.506***
			(-3.07)			(-3.13)
Portfolio size	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(-2.70)	(-2.68)	(-2.79)	(-3.61)	(-4.17)	(-3.83)
Altman	0.013	0.013	0.013	0.005	0.005	0.004
	(1.47)	(1.52)	(1.47)	(0.48)	(0.56)	(0.46)
Size	0.104***	0.098***	0.106***	-0.013	0.002	-0.005
	(3.12)	(2.96)	(3.16)	(-0.40)	(0.06)	(-0.14)
ROA	0.081	0.077	0.074	0.221	0.205	0.192
	(0.32)	(0.30)	(0.29)	(0.60)	(0.56)	(0.52)
Lev	-0.205	-0.183	-0.189	0.171	0.159	0.169
	(-0.83)	(-0.74)	(-0.76)	(0.67)	(0.63)	(0.67)
Recinv	0.454	0.502	0.484	-0.463	-0.471	-0.413
	(1.17)	(1.28)	(1.25)	(-0.97)	(-0.98)	(-0.87)
Financing	0.074*	0.072	0.073*	-0.046	-0.052	-0.053
	(1.69)	(1.63)	(1.65)	(-0.53)	(-0.60)	(-0.61)
Capint	-0.181	-0.167	-0.168	0.005	0.018	0.010
	(-1.07)	(-0.99)	(-0.99)	(0.03)	(0.11)	(0.06)
Aturn	-0.100	-0.099	-0.103	-0.168*	-0.166*	-0.172*
	(-1.04)	(-1.03)	(-1.07)	(-1.85)	(-1.83)	(-1.90)
Curr	-0.474	-0.505	-0.482	-0.105	-0.120	-0.126
	(-1.21)	(-1.28)	(-1.23)	(-0.28)	(-0.31)	(-0.33)
MTB	-0.011**	-0.011**	-0.011**	-0.013***	-0.012***	-0.012***
	(-2.43)	(-2.44)	(-2.38)	(-2.97)	(-2.89)	(-2.89)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	5,597	5,597	5,597	5,597	5,597	5,597
Pseudo. R^2	0.06	0.06	0.06	0.08	0.08	0.08

This table presents fractional logistic regression results using portfolio-level audit quality proxies as dependent variables. *Eq_Avg_Restate* is the equal-weighted average of the restatement likelihood of companies in a portfolio. *Vw_Avg_Restate* is the value-weighted average of the restatement likelihood of companies in a portfolio. The test variable is Herfindahl-Hirschman index that captures a portfolio-level auditor concentratedness. *HHI_Aud_comp* uses the number of clients per each auditor, *HHI_Aud_mve* uses clients' market value of equity per each auditor, and *HHI_Aud_fee* uses the audit fees of clients per each auditor as weights. Detailed definitions of variables are in Appendix A. Z-statistics based on robust

standard errors clustered at the portfolio level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 8 Common Ownership and Audit Efficiency

	Ln_Audfee			*Ln_Report_lag*		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
AVG_D_Cown	-0.18***			-0.03**		
	(-6.66)			(-2.29)		
AVG_N_Cown		-0.12***			-0.03***	
		(-6.90)			(-3.87)	
AVG_%_Cown			-1.58***			-0.30***
			(-7.33)			(-3.45)
Size	0.47***	0.48***	0.47***	-0.06***	-0.06***	-0.06***
	(75.12)	(75.26)	(75.37)	(-26.69)	(-26.71)	(-26.76)
ROA	-0.41***	-0.41***	-0.41***	-0.07***	-0.07***	-0.07***
	(-15.94)	(-15.92)	(-15.96)	(-6.81)	(-6.83)	(-6.83)
Lev	0.01	0.01	0.01	0.16***	0.16***	0.16***
	(0.35)	(0.36)	(0.40)	(12.47)	(12.47)	(12.49)
MTB	0.01***	0.01***	0.01***	-0.00***	-0.00***	-0.00***
	(6.73)	(6.81)	(6.76)	(-7.74)	(-7.73)	(-7.75)
Curr	0.10***	0.10***	0.10***	-0.15***	-0.15***	-0.15***
	(2.77)	(2.73)	(2.74)	(-11.06)	(-11.08)	(-11.07)
Capint	-0.16***	-0.16***	-0.16***	-0.06***	-0.06***	-0.06***
	(-8.60)	(-8.63)	(-8.62)	(-8.66)	(-8.66)	(-8.67)
Aturn	0.11***	0.11***	0.11***	0.02***	0.02***	0.02***
	(12.19)	(12.21)	(12.22)	(5.11)	(5.13)	(5.12)
Altman	-0.01***	-0.01***	-0.01***	-0.00***	-0.00***	-0.00***
	(-13.24)	(-13.24)	(-13.23)	(-6.24)	(-6.26)	(-6.25)
Growth	-0.04***	-0.04***	-0.04***	-0.00	-0.00	-0.00
	(-5.85)	(-5.85)	(-5.85)	(-0.08)	(-0.13)	(-0.11)
Financing	-0.03***	-0.03***	-0.03***	-0.00	-0.00	-0.00
	(-3.18)	(-3.12)	(-3.13)	(-0.42)	(-0.47)	(-0.44)
Foreign_sales	0.68***	0.68***	0.68***	0.01	0.01	0.01
	(22.31)	(22.34)	(22.34)	(0.86)	(0.89)	(0.87)
N_Bus	0.06***	0.06***	0.06***	0.01***	0.01***	0.01***
	(12.12)	(12.11)	(12.11)	(3.48)	(3.48)	(3.47)
Inst_Own	0.05*	0.05*	0.06**	-0.11***	-0.11***	-0.11***
	(1.81)	(1.82)	(2.14)	(-9.62)	(-9.32)	(-9.30)
Block	-0.01	-0.02	-0.02	0.02***	0.02***	0.02***
	(-1.07)	(-1.43)	(-1.50)	(3.51)	(3.47)	(3.42)
Aud X Ind X Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	44,260	44,260	44,260	44,682	44,682	44,682
Adj. R^2	0.839	0.839	0.839	0.32	0.32	0.32

This table presents regression results using audit fees and audit report lags as dependent variables. *Ln_Audfee* is the natural logarithm of audit fees. *Ln_Report_lag* is the natural logarithm of (1+audit report lag). Sample construction process starts from 49,173 company-years that are used to create company pairs. I exclude auditors that have less than 3 clients in a given industry and year. The test variables are the averages of the three common ownership measures between a focal company and its shared-auditor companies (*Avg_D_Cown, Avg_N_Cown,* and *Avg_%_Cown*). Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the company level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 9 Cross-sectional Tests

Panel A. Institution type, common ownership, and same auditor

	Same_Aud					
	All Pairs			Switcher - Non-switcher		
	D_Cown	*N_Cown*	*%_Cown*	*D_Cown*	*N_Cown*	*%_Cown*
Cown_13d	0.034***	0.032***	0.359***	0.047***	0.045***	0.514***
	(7.93)	(7.17)	(5.89)	(6.35)	(5.97)	(6.20)
Cown_no13d	0.016**	0.014**	0.201***	0.023***	0.022***	0.269***
	(2.57)	(2.67)	(2.71)	(3.29)	(3.52)	(3.46)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	3,158,133	3,158,133	3,158,133	396,157	396,157	396,157

Panel B. CEO insider ownership, common ownership, and same auditor

	Same_Aud		
	Switcher - Non-switcher		
	D_Cown	*N_Cown*	*%_Cown*
Cown	0.039***	0.026***	0.324***
	(3.76)	(3.99)	(3.99)
H_CEO_own X Cown	-0.035*	-0.028*	-0.337*
	(-1.71)	(-1.98)	(-1.97)
H_CEO_own	-0.025***	-0.025***	-0.025***
	(-4.27)	(-4.37)	(-4.33)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	67,678	67,678	67,678

This table presents regression results using the likelihood of sharing the same auditor as the dependent variable. Panel A examines activist common owners and non-activist common owners, separately. *Cown_13d* is the common ownership created by activist investors that have reported 13d filings. *Cown_no13d* is the common ownership created by non-activist investors that have not reported 13d filings. Panel B examines cross-sectional variation in CEO insider ownership. *H_CEO_own* is coded 1 if an auditor-switching company's CEO holds more than 5% of the company's shares, and 0 otherwise. I use three common ownership variables: the existence of common owner (*D_Cown*), the number of common owners (*N_Cown*), and the percentage of equity owned by common owners (*%_COwn*). Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 10 Common Ownership and Shared Audit Committee Members

	Shared_Audcom		
	Model 1	Model 2	Model 3
D_Cown	0.001**		
	(2.63)		
N_Cown		0.001***	
		(2.86)	
%_Cown			0.006***
			(3.15)
AVG_Size	0.000***	0.000***	0.000***
	(3.87)	(3.69)	(3.75)
Diff_Size	-0.000***	-0.000***	-0.000***
	(-3.54)	(-3.49)	(-3.51)
Diff_ROA	0.000	0.000	0.000
	(1.02)	(0.99)	(0.99)
Diff_Lev	0.000	0.000	0.000
	(0.26)	(0.26)	(0.26)
Diff_Curr	-0.001*	-0.001*	-0.001*
	(-1.85)	(-1.86)	(-1.86)
Diff_Aturn	-0.000**	-0.000**	-0.000**
	(-2.21)	(-2.21)	(-2.22)
Diff_Capint	-0.000*	-0.000*	-0.000*
	(-1.92)	(-1.91)	(-1.91)
Diff_MTB	0.000	0.000	0.000
	(1.44)	(1.41)	(1.43)
Diff_Growth	0.000*	0.000*	0.000*
	(1.84)	(1.84)	(1.84)
Diff_Financing	0.000	0.000	0.000
	(0.50)	(0.53)	(0.53)
Diff_Busseg	-0.000*	-0.000*	-0.000*
	(-1.98)	(-1.98)	(-1.98)
Diff_Ret	0.000	0.000	0.000
	(1.41)	(1.41)	(1.41)
Diff_Recinv	-0.001**	-0.001**	-0.001**
	(-2.56)	(-2.55)	(-2.55)
Diff_Altman	0.000	0.000	0.000
	(0.39)	(0.39)	(0.38)
Diff_Loss	-0.000*	-0.000*	-0.000*
	(-1.76)	(-1.75)	(-1.73)
Diff_DACC	-0.000	-0.000	-0.000
	(-0.69)	(-0.69)	(-0.69)
Same_state	0.002***	0.002***	0.002***
	(5.19)	(5.20)	(5.20)
Industry, Year FE	Yes	Yes	Yes
N	3,158,133	3,158,133	3,158,133
Adj. R^2	0.002	0.002	0.002

This table presents regression results using the likelihood of sharing the same audit committee member as the dependent variable. The three test variables are the existence of common owner (*D_Cown*), the number of common owners (*N_Cown*), and the percentage of equity owned by common owners

(*%_COwn*) between same-industry company pairs, respectively. Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the company level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.

Table 11 Robustness Checks

Panel A. Size match pairs

	All pairs			Switcher - Non-switcher pairs		
	D_Cown	*N_Cown*	*%_Cown*	*D_Cown*	*N_Cown*	*%_Cown*
Cown	0.024***	0.016***	0.213***	0.037***	0.029***	0.377***
	(4.85)	(5.11)	(4.70)	(4.17)	(4.44)	(4.54)
N	219,654	219,654	219,654	26,431	26,431	26,431

Panel B. 4-digit SIC code

	All pairs			Switcher - Non-switcher pairs		
	D_Cown	*N_Cown*	*%_Cown*	*D_Cown*	*N_Cown*	*%_Cown*
Cown	0.044***	0.029***	0.366***	0.053***	0.040***	0.493***
	(5.08)	(5.33)	(4.69)	(3.33)	(3.61)	(3.95)
N	618,427	618,427	618,427	75,983	75,983	75,983

Panel C. Excluding industry specialist auditors

	All pairs			Switcher - Non-switcher pairs		
	D_Cown	*N_Cown*	*%_Cown*	*D_Cown*	*N_Cown*	*%_Cown*
Cown	0.031***	0.022***	0.269***	0.036***	0.029***	0.339***
	(7.72)	(8.80)	(7.48)	(5.96)	(8.36)	(7.59)
N	2,135,429	2,135,429	2,135,429	287,603	287,603	287,603

Panel D. Similarity controlled for

	All pairs			Switcher - Non-switcher pairs		
	D_Cown	*N_Cown*	*%_Cown*	*D_Cown*	*N_Cown*	*%_Cown*
Cown	0.027***	0.019***	0.231***	0.060***	0.045***	0.548***
	(3.52)	(3.53)	(2.99)	(2.99)	(2.73)	(2.96)
Similarity	0.589***	0.589***	0.586***	0.355*	0.354*	0.352*
	(3.13)	(3.13)	(3.12)	(1.86)	(1.85)	(1.85)
N	475,253	475,253	475,253	48,622	48,622	48,622

Panel A reports regression results using size-matched pairs. Panel B reports regression results using the 4-digit SIC code to define same-industry company pairs. Panel C reports regression results after excluding clients of industry specialist auditors. Panel D additionally controls for product market similarity (Hoberg and Phillips 2010). Controls and industry and year fixed effects are included, but not tabulated for the sake of brevity. Detailed definitions of variables are in Appendix A. t-statistics based on robust standard errors clustered at the industry level are reported in parentheses. *, **, and *** denote significance at 10%, 5%, and 1% level, respectively, based on two-tailed tests.