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Ownership structure and audit quality: An empirical analysis considering ownership types in Jordan

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ABSTRACT

This study provides up-to-date evidence concerning the different corporate ownership types and their effect on audit quality in Jordan, and by extension to other developing countries with similar institutional environments. Different types of shareholders have different investment policies and targets, which affects how they exercise their monitoring role over the investee firms. However, the literature suffers from a tight focus on overall ownership concentration, with less attention to identities of the shareholders. This focus motivates the study to go further and test whether the demand for audit quality varies across different ownership identities. This study sheds light on this relationship in one of the developing countries where investor protection is relatively weak and overall regulations remain underdeveloped. To obtain robust results, the study employs different estimation methods and scales audit fees according to firm size in order to reduce spurious correlations and heterogeneity of variance due to firm size. The results show the importance of family, banks, and government ownership in ensuring high audit quality. Conversely, ownership by non-financial institutions and foreigners does not affect audit quality. Beyond its contribution to the literature, this study offers useful feedback for regulatory bodies to consider ownership types during their deliberations, assists investors in making better-informed decisions, and benefits other interested parties in gaining a better understanding of the role played by ownership structure in audit quality. This feedback can also apply to other countries with ownership structures and regulatory frameworks similar to those in Jordan.

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1. Introduction

1.1. Study overview

Over the past two decades, Jordan successfully walked down the path towards a free market economy. After launching its privatization program, the government maintained a continuing interest in developing the financial market in order to boost investors' confidence and attract more investment. The external audit function plays a significant role in the corporate governance system because it bridges the gap between those who prepare financial information (management) and those who use it (stakeholders). Therefore, external auditing is a key monitoring tool because it enhances the quality of financial statements and helps investors with their investment decisions by giving them confidence about the company's financial status (Brown, Beekes, & Verhoeven, 2011; Cohen, Krishnamoorthy, & Wright, 2002).

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Given that most developing countries are characterized by a weak legal protection for investors compared to the developed countries, the concentration of ownership can play an effective role as a corporate governance mechanism to protect shareholders' wealth (Shleifer & Vishny, 1997). Therefore, this study examines ownership concentration in Jordan and its effect on audit quality. It focuses on the common ownership identities in Jordan, namely family, financial institutions (banks), non-financial institutions, government, Arab foreign, and non-Arab foreign ownership.

By using a sample of 115 listed Jordanian firms over 8 years (2009–2016) and employing different estimation methods, the study highlights the importance of family ownership, bank ownership, and government ownership in ensuring high audit quality. However, audit quality is not affected of a company's ownership by non-financial institutions, Arab foreign owners, and non-Arab foreign owners.

This study contributes to the literature by going beyond the tight focus of merely ownership concentration and examines the role played by the most common ownership identities. The literature suffers from a scarcity of such research in the developing countries, particularly concerning the effect of foreign ownership and government ownership on audit quality. Moreover, the study contributes to policymakers by offering useful feedback to consider the common ownership types during their rulemaking processes. It also helps financial market participants with making better-informed investment decisions and aids other interested parties in gaining a better understanding of the role played by ownership structure in audit quality.

1.2. Study motivation

There is a plethora of research on ownership concentration as a corporate governance mechanism in Anglo-American and continental European countries. However, countries in the Middle East and North Africa (hereafter MENA) have received minimal attention, and corporate governance research in this region remains underdeveloped. The research from the developed markets leaves uncertainties with respect to the direction and magnitude of the empirical relationship in a developing market, such as Jordan. These uncertainties come from the institutional differences between development markets and Jordan, such as Jordan's less restrictive auditor's liability, lower disclosure requirements, and lower government enforcement.

Ownership structure is an important governance mechanism, particularly in the absence of a strong legal environment. As in many developing economies, Jordan's legal system does not offer sufficient protection for investors, which makes it commonplace for companies being controlled by large shareholders. In this vein, the different types of controlling shareholders have different investment policies and motivations, which consequently affects how they exercise their control rights over the investee firms. Niemi (2005) noted that a focus on concentration of ownership without considering each type of owner separately might lead to incorrect inferences concerning the role played by the different owners.

In addition, this study distinguishes itself from other relevant studies in many other ways[1] . First, this study considers all of the most common ownership identities in the market. Excluding Niemi (2005), previous studies tend to focus on one ownership type, e.g., family ownership (Niskanen, Karjalainen, & Niskanen, 2010), institutional ownership (Kane & Velury, 2004; Mitra, Hossain, & Deis, 2007), or ownership concentration itself (Hay, Knechel, & Ling, 2008; Piot, 2001).

Second, given that company size is a main determinant of audit fees (Abbott, Parker, Peters, & Raghunandan, 2003; Simunic, 1984) and has overwhelming influence over other firm characteristics, scaling audit fees according to firm size is essential to mitigate spurious correlations due to size in order to obtain better inferences. Apart from Mitra et al. (2007), no previous study considered this point, which makes the previously documented relationships with audit fees questionable.

Third, to the best of my knowledge this is the first study which examines the effect of foreign ownership on audit quality in a developing country.[2] Foreign investment is essential to global economic development, with flows exceeding US$1.5 trillion in 2011 (UNCTAD, 2012), and the openness of the Jordanian capital market to foreign investors in recent years is associated with a greater demand for better corporate governance and transparent financial numbers. Thus, it is worthwhile to study foreign ownership and its association with audit quality.

Fourth, all prior relevant studies used data for one financial year and, consequently, obtained their findings through cross-sectional regression (except Niskanen et al., 2010). The cross-sectional methodological approach can give biased estimates of the relationship between company characteristics and audit fees due to the endogenous determination of company characteristics and audit fees (Vafeas & Waegelein, 2007). To mitigate this problem, Vafeas and Waegelein (2007) suggest considering parallel changes in the potential determinants of audit fees by employing additional years of audit fee data. Therefore, this study provides better inferences by employing a panel data approach that uses observations over eight years. Finally, it contributes to the methodology literature by considering a panel-data analysis using different estimation methods, including the fixed-effect method, the random-effect method and the robust standard error estimation method, to ensure the validity of the data analysis and, consequently, more-rigorous findings in this kind of study.

The paper is organized as follows: Section 2 discusses audit quality in Jordan and appropriate proxies of audit quality. Section 3 highlights the theoretical framework. A literature review and hypotheses development are presented in Section

[1] Appendix A also clarifies the importance of this study and its contribution to the literature. It summarises the main relevant literature in terms of context, methodology, the variables used, and measurements.

[2] Niemi (2005) is limited to Finnish firms audited only by the Big Six. It relied only on 1996 data and used dummy variables for foreign and state ownership rather than continuous variables - as done in the current study.

4. Section 5 shows the research method, a description of variables, and the model specification. The findings are discussed in Section 6. Section 7 includes the study's conclusion, implications, and avenues for future research.

2. Audit quality: background and measurements

Audit quality in Jordan received more attention in the late 1980s. The Jordan Association of Certified Public Accountants (JACPA) was established in 1987 to improve the audit profession in the Jordanian market. At that time, the government launched a privatization program aimed at creating a proper environment to attract investors and strengthen the financial market via long-term investment. Therefore, the privatization process placed pressure on Jordan to adopt international accounting practices and created the need for high-quality auditing (Al-Omari, 2010).

However, the JACPA did not have the power to impose the International Accounting Standards and International Standards of Auditing on companies until 1997, when Jordan's Companies Law No. 22 of 1997 and Securities Law No. 23 of 1997 gave more power to the JACPA. The audit environment became more regulated after the enactment of these regulations. These regulations require all listed companies to have their accounts audited by an independent auditor and to disclose the audit fees and ownership details in their annual reports. Furthermore, Jordan's lower litigation risk compared with most developed countries might decrease an auditor's incentive to perform a high quality audit while increasing the need for an effective corporate governance mechanism (e.g., ownership concentration and effective audit committees) to demand high-quality audits.

Audit quality is a process of detecting and reporting material misstatement (DeAngelo, 1981). DeFond and Zhang (2014) extended the definition of audit quality beyond the simple detection of accounting standard violations to include showing how faithfully financial statements reflect firms' underlying economics. It is difficult to assess audit quality *ex-ante* because the amount of assurance provided by auditors is unobservable. The only observable outcome of the audit process is a common form of audit reports, and most of these reports are standard clean opinions (Francis, 2004).

In the literature, two sides exist when considering audit quality: demand and supply. The input-based proxies (auditor-client contracting features which are mainly audit fees and audit firms) are more appropriate when considering the demand side of audit quality (DeFond & Zhang, 2014). This study is interested in the demand side of audit quality; i.e., do family, government, institutional, and foreign owners "demand" high audit quality? A brief discussion of the demand-side proxies below addresses why this study uses audit fees as the most appropriate proxy to capture audit quality and why a Big 4 dummy proxy is less appropriate in Jordan.[3]

The amount of fees paid to external auditors is commonly used in high-profile studies as an indication of audit quality (Abbott et al., 2003; Ghafran & O'Sullivan, 2017; He, Pittman, Rui, & Wu, 2017; Zaman, Hudaib, & Haniffa, 2011). A high level of audit fees implies higher audit quality, *ceteris paribus*, either through more audit effort exerted (i.e., more audit hours) or through a greater expertise of the auditor (higher billing rates) (Francis, 2004). O'Sullivan (2000) noted that audit fees is an appropriate proxy for audit quality because it is expected that a greater amount of audit investigation requires more audit hours and/or the use of more-specialized audit staff – resulting in higher fees.

In the Jordanian context, Al-Khaddash, Al Nawas, and Ramadan (2013)) conclude that Jordanian firms should pay high fees as an incentive for auditors to do better work. They further mention that if auditors who receive high fees deliver poor audit quality, they would lose face and feel shame. This result is backed by Alhababsah (2016), who acknowledges the relevance of audit fees level as a measurement of audit quality in the Jordanian market. Alhababsah (2016) reached this conclusion based on responses from 199 members of boards of directors, audit committees, and auditors.

Although a Big-4 proxy can be used as an indication of audit quality (Francis & Yu, 2009), it is less appropriate in Jordan for several reasons. First, the Big-4 firms in Jordan operate through local affiliates (except for Deloitte). These affiliates might not have the same quality control standards as the Big-4 offices in larger, more developed countries. Second, Big-4 firms in Jordan do not have a substantial market share relative to developed countries, because only 35% of the non-financial listed companies are audited by the Big-4 affiliates (37% of our sample). Third, DeFond and Zhang (2014) note the major drawback of using a Big 4 and non-Big 4 dichotomy dummy variable as a discrete measure is its inability to capture subtle differences in the demand for audit quality. That dummy variable assumes that all companies audited by the Big 4 have high audit quality without considering variation in the audit quality between these firms, and similarly that all non-Big 4 firms provide the same lower level of quality audit.

3. Theoretical framework

The agency problem that arises between owners and managers due to information asymmetry between them is one of the main motivations for external audit. Jensen and Meckling (1976) argued that because agents act towards maximizing their own benefits even at the expense of principals, external auditors have a duty to mitigate the principal-agent conflict

[3] Supply-side proxies (e.g., accruals and going concern opinion) are less appropriate given the rationale of my study. In addition, these proxies are not without limitations as discretionary accruals tend to have high measurement error (Elshafie & Nyadroh, 2014) and there is no consensus on how these proxies should be measured. These accruals can be measured using an absolute value, assigned value, the Jones model, the modified Jones model, and/or performance matching (DeFond & Zhang, 2014).

and reduce the information asymmetry between them. Consequently, in the case of a large agency problem, it is expected that auditors will spend more effort in auditing activities (delivering higher audit quality).

Moreover, ownership concentration creates a new agency perspective, which is the principal-principal model where the conflict is largely between two groups of principals – majority (controlling) and minority shareholders (Dharwadkar, George, & Brandes, 2000). The main problem that stems from principal-principal conflict is expropriation of minority shareholders' value (Bao & Lewellyn, 2017; Shleifer & Vishny, 1997). In this structure of ownership, major decision rights remain in the hands of a few individuals. Additionally, there is usually insufficient separation of duties and weak monitoring activities to restrain an abuse of power by the controlling owners. Consequently, minority shareholders' concerns about management and/or controlling shareholders expropriation increase, thereby increasing the necessity for high audit quality as a means to mitigate these concerns (Fan & Wong, 2005; Habib & Jiang, 2015).

4. Literature review and hypotheses development

Ownership concentration is largely addressed in the literature as a corporate governance mechanism (Barroso, Ben Ali, & Lesage, 2018; Habib & Jiang, 2015; Tee, Gul, Foo, & Teh, 2017). However, empirical results have mixed findings concerning the monitoring effect of blockholders or whether their presence leads to higher audit quality. Furthermore, the literature suffers from a tight focus on overall ownership concentration, with less attention to the identities of the shareholders. Aguilera and Jackson (2003) and Lim, How, and Verhoeven (2014) strongly recommended considering different types of owners when studying ownership structure because they have different investment strategies, incentives, and monitoring abilities. Based on this notion, this study considers the different ownership types in the Jordanian market separately (family, financial institutions, non-financial institutions, government, Arab foreign, and non-Arab foreign ownership).

4.1. Family ownership

There are different arguments associated with the role played by family members as controlling shareholders. Previous studies (Anderson & Reeb, 2003; Chrisman, Chua, & Litz, 2004; Lim et al., 2014; Niskanen et al., 2010) fail to agree on whether family owners increase or decrease agency costs. From one perspective, family shareholders can play an important role in minimizing the agency conflict (alignment role). The alignment argument is based on the idea that there is no harmful conflict between controlling family owners and other owners, their interests are aligned, and the expropriation concern is thus decreased (Chrisman et al., 2004). This alignment view decreases the incentive to demand a high audit quality, given the positive association between the need for a higher audit quality and the severity of the agency problem (DeFond & Zhang, 2014; Niskanen et al. (2010).

Conversely, high family ownership increases the likelihood of power abuse and hurting non-family minority shareholders (entrenchment role). In family ownership firms, executive positions are often occupied by family members, increasing the opportunity to obtain private benefit and expropriate the interests of other shareholders (Fan & Wong, 2005; Wang, 2006). In the same vein, family ownership might increase the concern that management acts for the controlling family and disregards other owners. This situation reflects the type II agency problem (principal-principal agency problem); consequently, a high-quality audit is more likely required to mitigate this agency problem and protect the interests of other shareholders.

Family reputation is an important issue to consider in the context of family ownership. Anderson and Reeb (2003) pointed out that family shareholders have a reputational concern that motivates them to ensure firm values. This might be particularly relevant for Jordan, where a firm's name is often related to the family's name. In Jordanian society, people tend to boast of business success and could feel shame in the event of business failure. Alhababsah (2016) noted that in Jordan the owners of a failed business have a concern with gloating (schadenfreude) by other competitors. In the same vein, Alhababsah (2016) added that most family members who control businesses are well known in the society, and, therefore, they try to maintain their social status.

This reputational concern creates an implicit commitment among family members to maintain the family name and avoid abusing their power in order to obtain private benefits at the expense of other shareholders. At the same time, this commitment might increase incentives of family members to invest more in monitoring cost (e.g., audit cost) to avoid the adverse consequences (e.g., reputational damage) of presenting fraudulent financial statements. Consequently, the study develops the following hypothesis:

H1. There is a positive relationship between family ownership and audit quality.

4.2. Institutional ownership

Institutional investors play a crucial role in strengthening corporate governance systems (Shleifer & Vishny, 1997). They have strong incentives and power for effective monitoring and forcing managers to work towards maximizing shareholders wealth. These incentives and power exist due to their fiduciary duties (Bushee, 2001), large voting blocs (Shleifer & Vishny, 1997), and better business experience (Pound, 1988). Thus, institutional investors are most likely to demand (or encourage management to demand) high-quality audits as an effective monitoring (bonding) mechanism.

Mutual funds, hedge funds, endowment funds, pension funds, and commercial banks are examples of institutional investors in the developed countries (Bushee, 2001; Koh, 2003). Except for banks, in the Jordanian market these types of institutional investors are not common. Given that banks have different control systems and different capital requirements, this study examines the effect of this type of ownership separately from other institutional ownership.

Banks are a special type of institutional investor because they can be owners and lenders at the same time (Boonyawat, 2013). Bank shareholding creates a close relationship between banks and other firms (investee firms) that helps banks to play an effective monitoring role at lower cost (Barth, Caprio, & Levine, 2008; Coffee, 1991). Diamond (1984) reported that banks have specialized knowledge and better analytical abilities, which support their monitoring activities. Moreover, Tian (2004) indicated that if managerial agency costs are assessed at a high level, banks will be less likely to provide (or renew) a loan to the investee firm. This point is particularly true when banks are the main source of funding, which is the case in Jordan. Therefore, managers might be interested in higher audit quality to reduce agency cost and to increase the chance of obtaining (or renewing) a loan. In addition, bank shareholders are expected to demand high audit quality to curb management misbehavior and support their monitoring role.

Conversely, a close relationship between banks and other companies might affect management incentives, induce companies to select unfavourable investment decisions, and negatively affect companies' value (Berlin, John, & Saunders, 1996; Mahrt-Smith, 2006). Furthermore, when a bank acts as owner and lender at the same time, it can face a conflict of interest and might give priority to its own private benefit (Lin, Zhang, & Zhu, 2009). For instance, when a bank provides a loan to a company it partially owns at a higher cost, this lending will benefit the bank owners at the expense of the company's shareholders (Coffee, 1991). Therefore, in case of banks acting towards maximizing their benefits at the expense of other shareholders, they might be less inclined to demand high audit quality.

Despite the above discussion, evidence remains unclear concerning the role of banks in developing countries where the regulatory framework remains relatively weak. However, the bank sector in Jordan is well developed, well organized, and more committed to the corporate governance code compared with other sectors (Noor & Matar, 2007) [4] . Banks in Jordan works under strict regulation and close supervision from the Central Bank. In summary, it appears reasonable to expect that Jordanian banks are more interested in higher quality audits because they have incentives and the power to monitor financial reporting and penalize managers who report low earnings quality. Thus, the study states the following hypothesis:

H2. There is a positive relationship between bank ownership and audit quality.

In addition, ownership of business entities from the manufacturing and services sectors is also considered in this study. These non-financial firms work under different regulations than banks. These businesses are motivated by the incentives to hold block shares in other firms as a means of vertical or horizontal business integration, or as a strategy to diversify their businesses against market risk (Dinga, 2011). Grossman and Hart (1986) argued that non-financial firms invest in other firms to maximize their profit, expand their business network, control suppliers, or accomplish business integration. Consequently, these features result in this study separating non-financial institutions from financial institutions.

However, Alwshah (2009) raised a concern about non-financial institutions' ability to exert sufficient monitoring. For instance, sometimes the appointment of the representatives of institutional investors is based on a personal relationship rather than merit (Alwshah, 2009) [5] . Such a situation may weaken the representative's position in front of managers due to lack of experience. The dominant arguments in the literature indicate that institutional investors play a better monitoring role than individuals do because investors have more expertise and lead a professionally managed block of shares. Therefore, this study posits the following hypothesis:

H3. There is a positive relationship between ownership of non-financial institutions and audit quality.

4.3. Government ownership

Government ownership is a unique type of ownership because the government representatives are not the true owners and do not personally have cash flow rights (Niemi, 2005). However, government representatives still have an interest in increasing the credibility of financial reports in order to raise capital and give positive indications of their obligations to market-oriented policies (Ben-Nasr, Boubakri, & Cosset, 2015). Thus, it is expected that state representatives are more willing to demand high-quality audits to protect firm assets, maintain their reputation, and raise capital.

In contrast, government shareholders might have less incentive for effective monitoring because their behavior could be a function of political interests (Habib, Ranasinghe, Muhammadi, & Islam, 2018; Lim et al., 2014). Furthermore, Johnson and Mitton (2003) stated that government representatives intentionally create an opaque information environment to hide their inefficiency and corruption. In this case, it is expected that these representatives will resist appointing higher-quality auditors. This argument is consistent with Ben-Nasr et al. (2015), who empirically documented a significantly negative

[4] Banks in Jordan are the main source of external funds (Al-Fayoumi & Abuzayed, 2009). All Jordanian banks are privately owned; there is no state ownership of these banks. Banks in Jordan hold equity investment in different companies to diversify their risk and to maximize their wealth (Al-Fayoumi & Abuzayed, 2009).

[5] Representatives are persons appointed by institutional investors to act on their behalf to manage the investment in the investee firms. Examples are a director or chair on the board of an investee firm.

relationship between government ownership and earnings quality. This result indicates that the state has incentives to report lower earnings quality to hide the potential "tunnelling[6] " of corporate resources for political purposes or to hide any actions that adversely affect other shareholders.

In Finland, Niemi (2005) failed to find a significant association between government ownership and audit quality. Zeitun and Gang Tian (2007)) used data of 59 Jordanian firms over the period 1989–2002 and reported a negative effect of government shareholding on financial performance. However, since the mid-1990s government ownership significantly decreased due to the privatization process. After completion of the privatization process (1996–2006), state ownership is expected to be better because it became more organized and focused exclusively on the most important and strategic investments.

Attracting foreign investors is a top priority for the Jordanian government due to the country's limited natural resources (Zeitun & Gang Tian, 2007). Successive governments worked hard during the last two decades to improve the governance and disclosure system and to increase confidence in the financial market. There is no evidence of adverse behavior by government representatives against other investors in Jordan, suggesting that investors have no problem investing in government-controlled companies[7] . So government representatives will most likely demand high-quality audits in order to maintain firms' value and provide positive signals to prospective investors. Thus, the relevant hypothesis here is as follows:

H4. There is a positive relationship between government ownership and audit quality.

4.4. Foreign ownership

Previous studies report that foreign investors require more reliable and transparent information to avoid expropriation by insiders (Ben-Nasr et al., 2015). The literature documents that foreigners with substantial ownership exert more pressure on management by asking for higher audit quality in order to decrease information asymmetry and to obtain reliable financial reporting (Jiang & Kim, 2004). At the same time, to attract more foreign capital, managers might be interested in demanding high audit quality to send a positive signal about their integrity. Niemi (2005) found that audit fees (as a proxy for audit quality) are higher in foreign owned subsidiaries than in locally owned ones in his study of 200 non-financial Finnish companies audited by a Big Six accounting firm, suggesting that higher audit quality is related to foreign investors.

Foreign ownership in the Amman Stock Exchange (ASE) increased drastically in recent decades. The privatization process played an important role in shaping and adjusting ownership structures because it aimed to attract more Arab and non-Arab foreign investment by opening up the markets and abolishing state monopolies. Arab and non-Arab investments are common in Jordan and attract considerable attention from the Jordanian regulatory bodies. Local investors also welcome foreign investors because they believe that such investors contribute positively to firm value. The Privacy Shield Report[8] indicates that Jordanian businesses actively seek engagement with foreign partners as a means of increasing their competitiveness, obtaining international experience, and accessing other international markets[9] .

In addition to the relatively small geographical distance between Jordan and other Arab countries, Arab investors share similar culture, religion, family traditions, language, and tribal effect to those in Jordan. This similarity helps Arab investors in using informal socio-cultural networks, making them less sensitive to contextual considerations than non-Arab investors (Sekkat, 2014).

Non-Arab foreign investors are expected to have a larger agency problem for several reasons. The first reason is the physical distance between these foreigners and the Jordanian market. Investors who are geographically closer to investee firms have an information advantage over other investors, possibly because access to value-relevant information is relatively more convenient (Baik, Kang, & Kim, 2010; Kang & Kim, 2010). Kang and Kim (2010) find that the information asymmetry that arises from geographic proximity is an important determinant of investors' decisions because this proximity enhances their monitoring capabilities.

Second, the language barrier is an important source of information asymmetry because it negatively affects the communication process (Kang & Kim, 2010). However, this factor could be less severe because Jordanian people generally speak English[10], particularly the business community, including stock market brokers, directors, and Chief Executive Officers (CEOs) of listed companies. Third, cultural differences also increase information asymmetry (Krug & Nigh, 1998; Roth & O'Donnell, 1996). Roth and O'Donnell (1996) argued that as the cultural gap increases, it becomes more difficult and expensive for foreign investors to access information about investee firms.

In addition, foreign shareholders from countries with strong shareholders' rights (i.e., investors from western countries) are more likely to be interested in strong corporate governance than shareholders from countries with weak shareholder rights (Kang & Kim, 2010). The above discussion motivates the study to examine these types of foreign investors separately, and to state the following hypotheses:

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[6] Tunnelling is the transfer of assets and profits out of firms for the benefit of controlling shareholders, which hurts the interests of minority shareholders (Johnson, La Porta, Lopez-de-Silanes, & Shleifer, 2000).

[7] However, no studies explore the exact perceptions of the shareholders towards government ownership in Jordan.

[8] https://www.privacyshield.gov/article?id=Jordan-openness-to-foreign-investment

[9] Jordanian society is characterized by tolerance towards other religions and ethnicities; so foreigners need not be concerned about religious or ethnicity-related violence. In addition, the Jordanian constitution stipulates that there shall be no discrimination based on religion.

[10] Almost all non-Arab investors come from countries where English is the official language.

H5. There is a positive relationship between the level of Arab foreign investment and audit quality.

H6. There is a positive relationship between the level of non-Arab foreign investment and audit quality.

5. Research methodology

5.1. Sample description

The population of the study is the 177 listed non-financial firms in the ASE at the end of 2016 (Table 1). Financial companies are excluded because they are normally considered separately due to differences in their businesses and regulatory environment. As presented in Table 1, Panel a, the final sample is 115 public non-financial firms (65% of 177). The sample size appropriately represents the population (Table 1, Panel b), which helps to support the generalizability of the findings[11]. Further detailed classification of the firms shows that all industry sub-sections are represented (Table 1, Panel c). The study covers the period from 2009 to 2016, inclusive. The data are manually collected from annual reports and the Securities Depository Center.

Table 1
Sample description.

Panel a: Sample determination		Numbers
Listed non-financial companies in ASE as of 31/12/2016		177
Missing data		(62)
Final sample		115
Panel b: Sectors in Jordan as classified by ASE	*Total population*	*Sample included*
- Financial sector	Excluded	Excluded
- Manufacturing sector	64	43
- Services sector	113	72
Total	177	115
Panel c: Sub-sectors of the included sample	*Total population*	*Sample included*
Services sector		
- Health care	4	3
- Education	6	4
- Hotel and tourism	11	8
- Transport	11	5
- Communication	1	1
- Media	2	1
- Utilities	3	2
- Commercial services	75	48
- Total for service firms	113	72
Industrial sector		
- Pharmaceutical	6	6
- Chemical	10	7
- Paper and printing	4	2
- Food and beverage	10	7
- Tobacco	2	2
- Mining	14	10
- Engineering and construction	7	4
- Electric industries	5	3
- Textile and leather	6	2
- Total for Industrial firms	64	43

5.2. Variables of the study and model specification

The dependent variable is audit quality, which is measured using audit fees as an appropriate proxy as discussed in Section 2. The audit fees variable is transformed to natural log to help in achieving normality of data to prevent the largest firms from influencing the findings. The six different ownership identities are the explanatory variables: family ownership, financial institution ownership, non-financial institution ownership, government ownership, Arab foreign ownership, and non-Arab foreign ownership. This study uses a 5% ownership concentration threshold because Jordanian companies are mandated to disclose ownership of 5% and above. To avoid model misspecification, the study considers different control variables that might potentially affect the dependent variables. These control variables are well identified by prior research and include company size converted to natural log, business complexity measured by number of subsidiaries, leverage, profitability, risk level, loss, Big-4 audit firms, non-audit service, and industry type. See Table 2 for variable names and operationalizations.

[11] Sample size is consistent with Sekaran and Bougie (1992)'s guidelines.

Table 2
Regression model and definition of the variables.

lnFEES*it* = *β0* + *β1* FAMILY_OWN*it*+ *β2* FIN_INST_OWN *it* +*β3* NONFIN_INST_OWN *it* + *β4* GOV*it* + *β5* ARAB_FOR_OWN *it* + *β6* NONARAB_FOR_OWN *it* + *β7* BIG4*it* + *β8*LN_ FIRMSIZEit +*β9* NUMSUBS it + *β10* LEV*it* + *β11* ROA*it* + *β12* RISK + *β13* LOSS+ + *β14* NONAUDIT_FEES*it* +*β15* INDUSTRY +*e*

Variable symbol	*Variable name*	*Description and measurement*	*Expected coefficient sign*
lnFEES	Audit fees	Total amount paid to auditors as statutory audit fees (converted to natural log)	
FAMILY_OWN	Family ownership	Percentage of family ownership in the firm	+
FIN_INST_OWN	Ownership of financial institutions	Percentage of financial institution (bank) ownership in the firm	+
NONFIN_INST_OWN	Ownership of non-financial institutions	Percentage of corporate (non-financial institutions) ownership in the firm	+
GOV_OWN	Government ownership	Percentage of government ownership in the firm	+
ARAB_FOR_OWN	Arab-foreign ownership	Percentage of Arab foreign ownership in the firm	+
NONARAB_FOR_OWN	Non-Arab-foreign ownership	Percentage of non-Arab foreign ownership in the firm	+
LEV	Leverage	Debt as a percentage of total assets	+
NUMSUBS	Number of subsidiaries	Number of subsidiaries	+
LOSS	Loss	Dummy variable equals 1 if a company reported loss in last two years, 0 otherwise.	+
RISK	Risk	Percentage of current assets to total assets	+
ROA	Return on asset	Net profit as a percentage of total assets (indication of profitability)	–
BIG4	BIG4 audit firm	Dummy variable equals 1 if the company is audited by one of Big 4 audit firms, 0 otherwise.	+
LnFIRMSIZE	Firm size	Natural log of total assets	+
NONAUDIT_FEES	Non-audit fees	Dummy variable equals 1 if the audit firm provides non-audit service jointly with the obligatory audit work, 0 otherwise	–
INDUSTRY	Industry	Dummy variable equals 1 if manufacturing firm and 0 if services firm	+/-

The study uses cross-sectional time series model for its analysis (see Table 2). This audit fees model is characterized by a high degree of consensus on its measurement, with low measurement error and capture quality variation for a large number of companies (DeFond & Zhang, 2014; Gul & Goodwin, 2010). Ghosh and Tang (2015) stated that the audit fees model typically shows greater explanatory power, which decreases concerns about correlated omitted variables.

Because the dataset contains 115 entities over eight years, the panel data approach is more appropriate. Panel data can deal with different types of variables including variables which change between entities but are the same over time (time-invariant variables, e.g. industry code) and variables that change between entities as well as over time, (e.g. bank ownership and firms' profitability) (Wooldridge, 2010). Different estimation methods are employed, such as the fixed effects model (that tests the relationship between explanatory and outcome variables within an entity) and the random effects model (which assumes that the difference between groups is random and uncorrelated with predictor or explanatory variables). In addition, the robust standard error is a common model in the absence of homoscedasticity.

6. Data analysis and findings discussion

6.1. Descriptive results

Table 3a and Table 3b (Panels A and B) presents some important variable descriptive statistics. Family ownership, financial institutions (banks), and non-financial institutions are 12%, 9%, and 17%, respectively. These figures are consistent with the

Table 3a
Panel A: Descriptive statistics (Means) of continuous variables†.

YEAR	AUDITFEES (USD)	FAMILY_ OWN %	FIN_ INST_OWN %	NONFIN_ INST_OWN %	GOV_ OWN %	ARAB_ FOR_OWN %	NONARAB_ FOR_OWN %	FIRMSIZE (000)	LEV %	NUMSUBS	RISK %	ROA %
2009	13,660	10.7	8.1	19	1.2	7.4	3.4	6,8147	6.8	1.26	45	1.90
2010	13,944	11.0	8.1	18	1.2	7.0	3.5	6,9368	7.8	1.30	44	0.07
2011	14,262	12.0	9.0	17	1.2	8.0	3.3	7,7944	7.6	1.39	42	0.02
2012	14,620	12.0	9.0	17	1.2	8.0	3.5	8,0007	8.0	1.30	43	0.05
2013	15,178	12.0	9.0	15	1.2	8.7	3.6	8,5788	8.0	1.36	41	1.50
2014	15,351	12.0	9.0	16	1.2	8.4	3.6	8,4961	7.5	1.30	43	1.00
2015	15,402	12.4	9.0	16	1.2	8.8	3.6	8,5221	7.7	1.29	42	1.50
2016	15,490	12.4	9..0	16	1.2	9.0	3.8	8,5945	7.9	1.30	42	1.00
Total	14,744	12.2	9.0	17	1.2	8.0	3.7	7,9673	7.6	1.30	43	1.00

† Please refer to Table 2 for definition of the variables.

Table 3b
Panel B: Descriptive statistics for dichotomous variables†.

Year	Yes/No (%)	LOSS	BIG4	INDUSTRY	NONAUDIT_FEES
2009	Yes (Percentage)	43 (37)	40 (35)	42 (36)	12 (10)
	No (Percentage)	72 (63)	75 (65)	73 (64)	103 (90)
2010	Yes (Percentage)	53 (46)	42 (37)	42 (36)	12 (10)
	No (Percentage)	62 (54)	73 (63)	73 (64)	103 (90)
2011	Yes (Percentage)	51 (44)	44 (38)	42 (36)	11 (10)
	No (Percentage)	64(56)	71 (62)	73 (64)	104 (90)
2012	Yes (Percentage)	64 (56)	44 (38)	42 (36)	12 (10)
	No (Percentage)	51 (44)	71 (62)	73 (64)	103(90)
2013	Yes (Percentage)	60 (52)	43 (37)	42 (36)	12 (10)
	No (Percentage)	55 (48)	72 (63)	73 (64)	103 (90)
2014	Yes (Percentage)	47 (41)	45 (39)	42 (36)	12 (10)
	No (Percentage)	68 (59)	70 (61)	73 (64)	103 (90)
2015	Yes (Percentage)	46 (40)	44 (38)	42 (36)	12 (10)
	No (Percentage)	69 (60)	71 (62)	73 (64)	103 (90)
2016	Yes (Percentage)	52 (45)	44 (38)	42 (36)	12 (10)
	No (Percentage)	63 (55)	71 (62)	73 (64)	103 (90)
Average	Yes (Percentage)	52 (45)	43 (37)	42 (36)	12 (10)
	No (Percentage)	63 (55)	72 (63)	73 (64)	103 (90)

†Please refer to Table 2 for definition of the variables.

notion that this type of ownership is a common feature of the Jordanian companies and with previous studies about Jordan (Omran, Bolbol, & Fatheldin, 2008; Zeitun & Gang Tian, 2007). Foreign investments (which are 12% in total; 8% Arab and 4% non-Arab) changed slightly during 2009–2016 because the ASE obtained increased advantages as the most stable market in the region. Government ownership is stable over the study period.

6.2. Correlation analysis

Because of the non-parametric nature of our data, a Spearman collinearity test is used to test for variable multi-collinearity (see Table 4). The correlation table shows no multi-collinearity threat to the interpretation of the regression coefficients. The largest coefficient is between company size and audit fee (0.66), which is expected because historically size is the dominant determinant of audit fees (Simunic, 1980; Zaman et al., 2011). To overcome any potential problem in the regression, the study addresses this matter in Section 6.4 by scaling audit fees according to firm size to linearize the relationship between fees and firm size and to reduce heterogeneity of variance due to size. [12]

Table 4
Spearman correlation matrix.

Variables †	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(1) Ln_AUDITFEES	1.0															
(2) FAMILY_OWN	0.173*	1.00														
(3) FIN_INST_OWN	0.060	−0.19*	1.00													
(4) NONFIN_INST_OWN	0.003	−0.18*	−0.19*	1.00												
(5) GOV_OWN	0.472*	−0.108	−0.002	−0.10*	1.00											
(6) ARAB_FOR_OWN	0.215*	−0.17*	−0.106	−0.20*	0.113*	1.00										
(7) NONARAB_FOR_OWN	0.283*	−0.09*	−0.063	−0.19*	0.221*	−0.011	1.00									
(8) ln_FIRMSIZE	0.663*	0.23*	0.007	0.056	0.41*	0.182*	0.216*	1.00								
(9) LEV	0.222*	−0.18*	−0.069	0.18*	0.10*	0.164*	−0.011	0.32*	1.00							
(10) NUMSUBS	0.461*	−0.061	−0.062	0.096*	0.029	0.11*	−0.013	0.31*	0.124*	1.00						
(11) LOSS	0.026	−0.076	−0.16*	−0.004	−0.08*	0.08*	−0.056	−0.16*	0.12*	0.165*	1.00					
(12) RISK	−0.053	0.065	0.153*	−0.20*	−0.019	−0.020	0.026	−0.09*	−0.23*	−0.22*	−0.20*	1.00				
(13) ROA	0.012	0.055	0.24*	−0.04	0.131*	−0.055	0.068	0.24*	−0.11*	−0.079	−0.43*	0.122*	1.00			
(14) BIG4	0.484*	−0.09*	0.142*	0.06	0.219*	0.15*	0.275*	0.33*	0.109*	0.090	−0.024	−0.031	0.022	1.00		
(15) NONAUDIT_FEES	−0.034	0.027	−0.143	−0.04	0.121*	−0.09*	−0.029	−0.004	−0.065	−0.032	0.038	−0.009	−0.010	−0.054	1.00	
(16) INDUSTRY	−0.063	0.160*	−0.08*	−0.10*	0.09*	−0.028	0.19*	−0.11*	−0.09*	−0.20*	−0.12*	0.193*	0.025	−0.08*	0.149	1.0

* Indicates the correlations is significant at level 5%.
† Please refer to Table 2 for definition of the variables.

[12] The variance inflation factor (VIF) and tolerance levels (1/VIF) were also checked. They show that all values are within acceptable levels, suggesting no multi-collinearity problems (Gujarati, 2003).

6.3. Results discussion (hypotheses testing)

Table 5 presents regression results of the variables and their effect on audit quality measured by a natural log of audit fees. Given that the random effect estimation method is more appropriate (than the fixed effect one) based on the Hausman test outcome[13], it is considered the main estimation method (column 1). Nevertheless, the outcome of the fixed effect estimation method is very close to the random effect one, and does provide an indication about within-firm variations (column 2). Column 3 shows the outcome of Huber-White's sandwich estimator, a common, robust regression in the presence of heteroscedasticity.

As expected, the regression shows significant association between family ownership (FAMILY_OWN) and audit quality (H1). This result supports Anderson and Reeb (2003), who suggest that family firms have reputational concerns, are interested in protecting their reputations, and are less inclined to publish misstated financial statement. This scenario is relevant for Jordan, in which the names of many firms are related to the families' names, as indicated in Section 4.1.

The regression result with respect to financial institutions ownership (FIN_INST_OWN) supports the hypothesis (H2). This result is consistent with many empirical studies that agree on the important role of bank ownership as a provider of effective monitoring and in decreasing agency problems (Barth et al., 2008; Coffee, 1991). This result is also consistent with the notion that banks in Jordan are characterized by a sound corporate governance system and have strong incentives to exert effective monitoring. Ownership by non-financial institutions (NONFIN_INST_OWN) shows no significant relationship with audit quality (H3). This result echoes concerns raised by Alwshah (2009) that non-financial firms might weaken their monitoring due to significant business relationships with the investee firms.

Consistent with the hypothesis (H4), audit quality is significantly positively associated with government ownership GOV_OWN[14] . This result is expected because the behavior of government representatives is ideally consistent with the overall government strategy concerning attracting investments, so they maintain financial market reputation by assuring high audit quality. Conversely, this result is not consistent with Niemi (2005), who found no such relationship. But Niemi's study was conducted in Finland, which is contextually different from Jordan[15] . Both foreign ownership identities, Arab foreign ownership (ARAB_FOR_OWN) and foreign-non-Arab foreign ownership (NONARAB_FOR_OWN), are significantly positively correlated with audit quality (H5 and H6, respectively). However, this result changes in the next section, when the effect of firm size is considered.

Table 5
Regression of the effect of different ownership identities and different control variables on audit quality (measured by *ln* audit fees) – using different estimation methods.

Variables†	*Column1*: *Random-Effect Regression*		*Column2:Fixed-effects regression*		*Column3*: *Robust standard error regression (Huber-White's S. estimator)*	
	Coefficient	*z* value	Coefficient	*t* value	Coefficient	*z* value
FAMILY_OWN	0.35	2.74***	0.52	3.11***	0.35	1.87**
FIN_INST_OWN	0.47	2.51**	0.38	1.26	0.47	1.72*
NONFIN_INST_OWN	0.13	1.39	0.13	1.24	0.13	0.87
GOV_OWN	0.75	5.45***	–	–	0.76	6.65***
ARAB_FOR_OWN	0.33	2.36**	0.20	1.20	0.33	2.14**
NONARAB_FOR_OWN	0.60	2.58***	−0.18	−0.50	0.60	1.40
*Ln*_FIRMSIZE	0.16	7.17***	0.12	4.10***	0.16	3.89***
LEV	0.08	0.77	0.06	0.53	0.08	0.54
NUMSUBS	0.06	6.55***	0.05	3.54***	0.06	3.22***
LOSS	−0.02	−1.56	−0.03	−1.82**	−0.02	−1.15
RISK	−0.05	−0.77	−0.07	−0.93	−0.05	−0.55
ROA	−0.20	−2.21**	−0.18	−1.98**	−0.20	−1.58
BIG4	0.25	7.04***	0.24	6.26***	0.25	2.85***
INDUSTRY	0.09	1.15	–	–	0.09	1.16
NONAUDIT_FEES	−0.08	−0.86	−0.02	−0.14	−0.08	−0.96
Intercept	5.50	13.16***	6.30	11.4***	5.50	7.90***
R-square	0.73		0.48		0.73	
F statistics (*p*-value)	448.61***		8.34***		633.37***	

† Please refer to Table 2 for definition of the variables.
*Sig. at level 10%, ** sig. at level 5%, ***sig. at level 1%.

[13] When the Hausman test suggests the random effect model as a superior option, a Lagrange Multiplier test is used to check whether heterogeneity of entities is significant. The outcome of a Lagrange Multiplier test indicates that the random-effect model used is appropriate.

[14] The government variable GOV_OWN is omitted under the fixed-effect estimation method (Table 6, column 2). Given that the fixed-effect estimation method considers variations within firms only, any time-invariant variable will not be presented under this estimation method. The government ownership in Jordanian firms is stable over the study period and does not change "within" firms.

[15] In terms of methodology, Niemi (2005) used only one year in his study and employed a dummy variable for state ownership (1 if majority of shares owned by state, 0 otherwise).

6.4. Further analysis: scaling audit fees according to firm size

Firm size is an agreed determinant of audit fees throughout the literature, and it has a strong effect on different firm characteristics (overwhelming influence of large firms). So by considering the effect of firm size by scaling audit fees according to firm size, the study obtains a better indication of the effect of the variables on audit fees. This study scales audit fees according to firm size to linearize the relationship between fees and size and to reduce spurious correlations and heterogeneity of variance due to size (Simunic, 1980).

The results in column 1 (Table 6) show the outcome of the fixed-effect method[16] (the Hausman test provides an indication about the appropriateness of this estimation method[17]). In addition, given that the outcome of the Breusch-Pagan/Cook-Weisberg test still indicates evidence of heteroscedasticity, the robust standard error method (Huber-White's sandwich estimator) is employed as a more reliable method to diagnose this issue (column 2).

Table 6 shows the regression results of the effect of ownership type variables and control variables on the new outcome variable (scaled fees). The results are largely consistent with the earlier analysis that used the natural log of fees as an outcome variable. The variables retain their significant correlation with audit fees even after considering the effect of firm size, except Arab-foreign ownership (ARAB_FOR_OWN) and non-Arab foreign ownership (NONARAB_FOR_OWN). The coefficient estimates indicate the relative changes in audit fees as follows. Each 1 percent increase in family ownership is associated with 1.7 percent increase in unlogged audit fees, on average, comparing with other firms that do not have family ownership. Similarly, the increase in audit fees would be 1 percent and 1.4 percent with each 1 percent increase in bank ownership and government ownership, respectively.

The two foreign ownership types do not show a significant relationship with audit quality (H5 and H6). This result weakens the outcome presented in Table 5 and indicates that foreign investors primarily target large firms for investment. This notion is supported by Dahlquist and Robertsson (2001), who found a strong correlation between foreign ownership and firm size (i.e., foreign investors are more inclined to invest in large firms than in small ones). Therefore, this insignificant relationship is likely due to foreigners investing in Jordan as an evolving market for the long term (Tayem, 2015), and the level of monitoring they exert might be less than expected.

Table 6
Regression of the effect of different ownership identities and different control variables on audit quality (measured by scaled audit fees).

Variables†	*Column1: Fixed-effects regression*		*Column2: Robust standard error regression (Huber-White's sandwich estimator)*	
	Coefficient	*t* value	Coefficient	*z* value
FAMILY_OWN	2.36	3.84***	1.69	2.11**
FIN_INST_OWN	−0.16	−0.14	1.00	1.68*
NONFIN_INST_OWN	−0.40	−1.00	−0.10	−0.19
GOV_OWN	–	–	1.40	3.28***
ARAB_FOR_OWN	0.12	−0.19	0.39	0.82
NONARAB_FOR_OWN	0.65	0.51	1.10	1.33
LEV	0.46	1.11	0.05	0.12
NUMSUBS	−0.04	−0.60	0.06	0.95
LOSS	−0.06	−0.84	−0.03	−0.45
RISK	−0.65	−2.38**	−0.56	−1.67*
ROA	−1.06	−3.10***	−1.10	−1.79*
BIG4	0.21	1.51	0.30	1.38
INDUSTRY	–	–	0.38	1.40
NONAUDIT_FEES	−0.03	−0.04	−0.04	−0.13
Intercept	0.177	0.18	0.48	0.43
R-square	0.18		0.17	
F statistics (*p*-value)	5.92***		136.01***	

† Please refer to Table 2 for definition of the variables.
*Sig. at level 10%, ** sig. at level 5%, ***sig. at level 1%.

7. Conclusion and future research avenues

Given that the literature suffers from a tight focus on ownership concentration and often ignores the different identities of those shareholders, this study contributes to the literature by moving beyond this boundary and extending the investigation for all prevalent ownership types in the context under investigation. Therefore, this empirical paper examines whether the level of audit quality is related to the different ownership identities.

[16] As discussed previously, the fixed-effect method omits the time-invariant variables (e.g., GOV_OWN and INDUSTRY), and financial institution ownership (FIN_INST_OWN) is insignificant under this method, likely due to insignificant variance within firms.
[17] When fixed-effect model is appropriate, it is considered a fully efficient estimation method, and the estimations of random-effect method become inconsistent (Cameron & Trivedi, 2009). Thus, results of random-effect method are not presented.

The important results are that family, government, and bank ownership play a significant role in ensuring credible audit quality. This result has implications for regulatory bodies, such as the Jordan Securities Commission (JSC), to encourage the participation of these types of investors in the capital markets. However, the analysis shows that the level of non-financial institutional ownership is not related to audit quality. This result also has implications for policymakers. For instance, the result encourages and motivates these non-financial institutions to provide effective (productive) monitoring over the firms they invest in because doing so can enhance the reliability and transparency of reported earnings. Financial market participants can also benefit from this study to make better-informed investment decisions. In other words, it might affect the behavior of investors and reduce their concern that large shareholders might exploit corporate assets.

Like any research project, this study is not without limitations. First, the study excluded financial companies because they are normally considered separately due to differences in their businesses and in their regulatory environment. In this vein, future studies could focus on financial companies given their vital role in the Jordanian financial market. Second, this study relies on a secondary data approach. Other research approaches such as self-administrated questionnaires or interviews might provide richer insights and a more accurate picture concerning the role of different ownership types in ensuring higher audit quality.

Third, audit quality is difficult to measure because the level of assurance provided by auditors is unobservable. The audit fees model is employed to capture audit quality because audit effort and audit fees are highly correlated, but ideally actual audit hours spent in the auditing process by analyzing timesheets of auditors and determining the time spent for each audit assignment (rather than audit fees) would be a better indicator of audit effort. Finally, in order to increase generalizability, future research could do a comparative study of Jordan with other developed or developing countries to highlight the effect of different institutional settings.

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Appendix A. A summary of key previous studies that consider the role of ownership structure in audit quality

Author(s)	Context	Study variables	Sample & methodology	Main results
Hay et al. (2008)	New Zealand	The effect of ownership concentration (>20%), internal audit, audit committee on audit quality	130 Companies over two years (1995 and 2005) and employed OLS regression.	All variables have a positive relationship with audit fees.
Jiang and Kim (2004)*	Japan	Foreign ownership and information asymmetry	A sample over 18-year period from 1976 to 1994. Time serious and cross-sectional models are employed to test timing and magnitude of intertemporal return-earnings associations.	Negative relationship between foreign ownership level and information asymmetry.
Kane and Velury (2004)	US	Institutional investors and audit quality	Sample of US industry firms (1992-1996). Big 6-dummy variable is used to capture audit quality.	Positive association between institutional ownership and audit quality.
Mitra et al. (2007)	US	Comparing the effect of small institutional shareholders (< 5%) and large institutional shareholders (≥5%) on audit fees.	Sample is limited to the US industrial firms - for year one year only, 2000.	Positive relationship between small institutional ownership and audit fees, and a negative relationship between large institutional ownership and audit fees.
Niemi (2005)	Finland	Foreign-owned subsidiaries, state ownership and audit fees.	Sample of 200 firms for one year (1996). The study is limited firms audited only by the Big Six. Foreign and state ownership are considered as dummy variables.	Audit fees are higher in foreign-owned subsidiaries. State ownership has no significant relationship with audit fees.
Niskanen et al. (2010)	Finland	Family ownership in small and private firms & audit quality	Private firms (2000 to 2006). Using The logit regression model. Big 4-dummy variable is used to capture audit quality.	The results indicate that family-controlled firms are less likely to use Big 4 auditors.
Wang (2006)*	US	Family ownership and earning quality	4195 firm-year observations that have proxy statements available in Lexis-Nexis from 1994 through 2002.	Founding family ownership is associated with lower abnormal accruals and greater earnings informativeness.

* These two studies do not consider audit quality, but their results provide insights about the role of ownership structure.

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