

# **Multiple audit mechanism, audit quality and cost of debt: Empirical evidence from a developing country**

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# **Multiple audit mechanism, audit quality and cost of debt: Empirical evidence from a developing country**

## **Abstract**

This study focuses on the distinctive Egyptian setting, where firms could use multiple audit mechanism voluntarily or mandatory under certain circumstances. We investigate the effects on audit quality and cost of debt. A sample of 1699 firm-year observations of Egyptian listed firms for the 2009-2019 period is used. Abnormal accruals are employed as proxies of audit quality through abnormal working capital accruals and modified-Jones models. Results suggest that joint audits are not associated with both proxies of audit quality. In contrast, the dual audit is positively associated with abnormal accruals leading to conclude that dual audits are not providing a high level of audit quality. But this result holds only in companies with income decreasing discretionary accruals. These results are in line with litigation and reputational risk fears offering motivations for auditors to favour conservative accounting alternatives (i.e., income decreasing discretionary accruals). This implies that firms opting to employ dual audits have a higher level of earnings conservatism. Our evidence also indicates that the choice of multiple audit mechanisms especially joint audits is related to significant increases in the cost of debt, implying a higher perceived level of risk. Further, dual audits decrease the cost of debt only in companies with high earnings management. This study adds to the literature on whether the preference of income-increasing or income decreasing discretionary accruals is related to multiple audit mechanism and consequently affected the cost of debt. Together, our results support the view that voluntary joint audits are not related to audit quality in Egypt compared to mandatory dual audits, which consequently affect the pricing of debt. Our results have important implications for policymakers, audit firms and investors.

**Keywords:** Multiple audit mechanism; Joint audits; Dual audits; Audit quality; Cost of debt; Accountability state authority; Egypt.

JEL Classification M42

# 1. Introduction

Literature offers inconsistent evidence regarding the role of joint audits in affecting audit quality or/and cost of debt (Al-Hadi et al., 2017; André et al., 2016; Lesage et al., 2013, 2016; Lobo et al., 2017; Zerni et al. 2012). Prior archival joint audits literature has generally focused on the European context. However, given that developing countries have distinctive characteristics (e.g., culture, social, economic, and political issues), it is important to assess whether joint audits offer higher audit quality in a relatively low litigious setting. In this paper, we examine the impact of multiple audit mechanisms (i.e., joint audits and dual audits)<sup>1</sup> on audit quality and cost of debt in the Egyptian context.

In 2010, the European Commission [EC] launched a Green Paper to discuss the possibilities of generalizing a French practice that mandate joint audit within which a company appoint two audit firms to issue a single report. The main motive behind that is to reduce concentration phenomenon in the European audit market, where big audit firms dominate 90 percent of revenues. In 2011, EC Issued a report contains responses from different parties regarding the Green Paper Proposal of appointing two audit firms (EC, 2011a). Big audit firms' response to Green Paper Proposal indicates that the proposal will impair audit quality and will cause serious problems regarding coordination between auditors who participate in joint audits. In contrast, non-big audit firms support the proposal. Their response reflects that audit concentration in Europe would be reduced in a similar way to what happened in the French audit market. Investors provide conflict responses. Some indicate concerns about increased audit costs and reducing auditors' responsibilities. On contrary, others did not indicate a negative response. Based on responses from different parties, EC decides in 2011 not to obligate all European corporations to hire two auditors (EC, 2011b). Nevertheless, once again in 2014, the official journal of the European Union asserts that joint audit is an important tool to reinforce professional skepticism, help to increase audit quality and facilitate the development of smaller audit firms. EU expresses its opinion in Regulation (EU) No 537/2014.

Since the issuance of Green Paper, many studies had been conducted in European countries in order to assess the effect of joint audits on both audit quality and audit fees. In this

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<sup>1</sup> Joint audit is where a company appoint two audit firms to issue a single report. In dual audit, more than one auditor may be allowed to perform the audit. However, each auditor is working separately to issue his own audit report. Therefore, users may receive different audit reports about same firm. We introduce multiple audit mechanism concept to express audit work performed by more than a single audit firm. This mechanism may reflect either joint audits or dual audits.

regard, two experiences of mandatory joint audits were evaluated. These are Danish and French experiences. In Denmark, the joint audit had been enforced for 75 years [from 1930 to 2005]. In that period, all listed companies were obligated to engage two audit firms to audit the same financial statements (Holm and Thinggaard, 2014; Holm and Thinggaard, 2012; Thinggaard and Kiertzner, 2008). In France, since 1966 all listed companies should appoint two audit firms at least to conduct financial statement audits (Ratzinger-Sakel et al., 2012; Audousset-Coulier, 2015).

Given that studies performed in general, and in Denmark and France in particular, have investigated audit quality under joint audit, it would be useful to assess 65 years of the Egyptian experience. Egypt has a special situation and long-standing practices in this regard. Egypt permits both joint and dual audits based on the discretion of the companies under audit. This provides a good opportunity to assess the effect of both joint and dual audits on audit quality. Egypt permits all corporations to appoint one auditor or more to perform the audit process. This form of voluntarily joint audits began in 1954 and still in force until today. Previous companies' law [article 51 of Law No. 26/1954] and current companies' law [article 103 of Law No. 159/1981] give this right to all corporations. Therefore, Egypt represents a unique environment of joint audits. This practice is available also in some European countries such as Sweden, Germany, and Denmark (Lobo et al., 2017).

Egypt also enforced banks to appoint two audit firms to perform audit work and issue a joint audit report through which they share liability (article 83 of Law 88/2003). Other countries such as Algeria and South Africa require financial institutions to designate two auditors and issue joint audit report (e.g., Deng et al., 2014; Ratzinger-Sakel et al., 2013). In addition to allowing joint audit practices upon discretion and enforcing financial institution to apply joint audits, Egyptian lawmakers open doors for dual audits. Like a joint audit, more than one auditor may be allowed to perform the audit. However, each auditor is working separately to issue his own audit report. Therefore, users may receive different audit reports about the same financial statements. This unique situation arose because of enforcing completely or partly state-owned companies in Egypt to appoint a specific auditor to perform audit work (El-Dyasty and Elamer, 2021). According to law 1441/1988, if the Egyptian State owns at least 25% of a company's equity, a formal governmental agency must verify its financial statements and issue an audit report. This agency is called Accountability State Authority [ASA] (<http://asa.gov.eg>). Normally, reports of ASA are not limited to ascertain of applying generally accepted accounting principles. These reports provide a long list of remarks and

recommendations. The main objective is to evaluate financial and managerial decisions and reporting on compliance with laws and regulations other than accounting standards. Then, ASA submits remarks and recommendations to a higher level of government to make actions and corrections. Since the most common type of audit report issued by ASA is a qualified opinion, some state-owned companies think that ASA's audit report is not providing a good image of conformity with generally accepted accounting principles. In addition, these companies want to make their own choice of an audit firm. Law does not prevent this choice (Article 5 of Law 144I/1988). Therefore, they may appoint a private audit firm or firms to audit the same financial statements audited by ASA. Usually, an audit report issued by a private firm is included with financial statements and the ASA report is issued separately and submitted to both Egypt Exchange and governmental authorities.

To answer the research questions, a sample of Egyptian listed companies' financial statements and accompanied audit reports between 2009 and 2019 are used. Abnormal accruals are employed as proxies of audit quality. Dual audits are positively associated with abnormal accruals, which indicates that dual audits are impairing audit quality. This result mainly occurs in companies aiming to manage earnings to decrease income. These results are in line with litigation and reputational risks fears offering motivations for auditors to favour conservative accounting alternatives (i.e., income decreasing discretionary accruals). This implies that firms opting to employ dual audits have a higher level of earnings conservatism. However, we do not find evidence that joint audits affect audit quality. Our evidence also indicates that the choice of multiple audit mechanisms especially joint audits is related to significant increases in the cost of debt, implying a higher perceived level of risk. Further, dual audits decrease the cost of debt only in companies with high earnings management. This study adds to the literature on whether the preference of income-increasing or income decreasing discretionary accruals is related to multiple audit mechanism and consequently affected the cost of debt. Together, our results support the view that voluntary joint audits are not related to audit quality in a relatively low litigious setting compare to mandatory dual audits, which consequently affect the pricing of debt.

Our study contributes to the current literature in the following ways. First, extant research often investigates whether multiple audits affect one particular type of accruals, but whether the preference of income-increasing or income decreasing discretionary accruals is associated with multiple audit mechanisms more specifically is an underexamined research area. We add to the literature by filling this void. Our results suggest that joint audits are not

associated with both proxies of audit quality. In contrast, the dual audit is positively associated with abnormal accruals leading to conclude that dual audits are not providing a high level of audit quality. But this result holds only in companies with income decreasing discretionary accruals. These results are in line with litigation and reputational risks fears offering motivations for auditors to favour conservative accounting alternatives (i.e., income decreasing discretionary accruals).

Second, we also add to the cost of debt literature, but more notably, we believe that we offer useful insight into the reasons for and effects of multiple audits in the Egyptian setting. There is scarce, if any, archival literature (Al-Hadi et al., 2017) that studies the influence of multiple audit mechanisms and its influence on the cost of debt. We find that the association between multiple audit mechanisms and the cost of debt is moderated by the level of earnings management. Thus, even though the current research (Al-Hadi et al., 2017) provides evidence that joint audits reduce the cost of debt, we extend this line of research by showing that the negative association between dual audits and cost of debt is more evident for firms when there is a high earnings management. Therefore, we contribute to the previous research that finds benefits associated with dual audits. Our findings highlight the importance of investigating both mandatory (dual) and voluntary (joint) multiple audits to obtain reliable conclusion about the consequences of multiple audits in the Egyptian market.

Third, this study complements extant literature that focuses on a mandatory or voluntary joint audit setting, by examining this association in the Egyptian context, where both mandatory and voluntary joint audits exist. Fourth, this study sheds further light on the behavioural attributes of multiple audit mechanisms and has policy implications for policymakers in other developing markets and the longstanding discussion about the costs and benefits of joint audits. Our results backing the concern that multiple audits may not be effective in constrain earnings management.

The remainder of this study will be presented in six sections. Section 2 discusses multiple audit mechanisms in the Egyptian environment. Section 3 includes the literature review and the development of research hypotheses. Method and sample are presented in Section 4. Section 5 contains the results. Section 6 provides supplemental analysis. Finally, the summary and conclusion are presented in Section 7.

## **2. Multiple Audit Mechanism in Egyptian Environment**

## **2.1 Single audits versus multiple audit mechanisms**

Traditionally a single audit firm performs an audit function. The audit firm forms an audit team in order to obtain and evaluate evidence related to management assertions in the financial statements (Nilsson, 2018). The leader of the audit team (engagement partner) signs and issues an audit report in which he or she is expressing an opinion about conformity between financial statements and generally accepted accounting principles. In a few cases, two partners from the same firm could voluntarily participate together in the audit process and sign the audit report. These represent joint engagement partners. Such engagements are performed in Sweden and Finland (Ittonen and Trønnes, 2015). Other countries, such as Taiwan, mandate conducting audit engagements and signing audit reports through two partners of the same audit firm (Kung et al., 2019; Chen et al., 2008). Other countries, such as Germany, require both responsible partner and review partner to share responsibility and sign the audit report together (Gold et al., 2012).

In contrast to single audits, a multiple audit mechanism is implemented through the involvement of more than one audit firm in the audit process. Two distinct concepts could be used when performing audit engagements via more than one audit firm. These are joint audits and dual audits (Baldauf and Steckel, 2012; Lesage et al., 2016; Holm and Thinggaard, 2016; Quick, 2012; Ratzinger-Sakel et al., 2012, 2013). In the joint audits mechanism, two audit firms or more participate together to plan audit, perform audit tests, and certify the audit report. On the other hand, in conducting dual audits, two audit firms separately perform the audit process for the same financial statements and issuing two audit reports about the same financial statements. Therefore, audit firms participating in joint audits must cooperate and allocate audit work. This is not the case within dual audits.

The joint audit may be performed mandatorily or voluntarily. In France, all companies are obligated to use joint audits. Other countries, including Egypt, permits companies to appoint one or more audit firm(s) to conduct the audit. On the other hand, dual audits involve adhering to law or regulation when choosing the participating audit firms or at least one of them. For example, in China, from 2001 to 2010 dual audits were required for some companies. These companies were obligated by the China Securities Regulatory Commission to prepare their financial statements in two versions based on Chinese accounting standards and international accounting standards. Thus, companies were required to designate two different audit firms to perform the audit process separately and to express an opinion about each version

of financial statements (Wang, 2014; Lin et al., 2014). Likewise, the Central Bank of Kuwait obligates banks to perform dual audit by appointing two different audit firms working disjointedly to express an opinion about the same financial statements (Alanezi et al., 2012).

## **2.2 Multiple audit mechanism: Advantages versus disadvantages**

Lawmakers and regulators who prefer multiple audit mechanisms think that they are providing a higher level of quality compared to a single audit. The logic is so simple, two heads are better than one. On this ground, prior research considers audit quality, audit fees and minimizing concentration in the audit market as the most important dimensions within the joint audit context (Velte, 2017). EC (2011b) extensively discusses the potential benefits and downsides of applying joint audits. Achieving a higher level of audit quality is the major potential advantage. Audit quality is accomplished through employing mutual expertise between the two firms participating in the audit process. In addition, joint audits are reinforcing professional skepticism because each peer knows that the other peer participating in the audit process will review his work. However, higher audit quality is not always the outcome of joint audits. Some countries like Denmark and Canada abandoned joint audits, while other countries, such as France, continue to apply mandatory joint audits (Bedard et al., 2014). Same audit quality could be attained by appointing single audit firms with a cheaper audit fee (Holm and Thinggaard, 2018). In contrast, prior research concludes that employing joint audits in private Italian companies will enhance audit quality and facilitate knowledge transfer and increase auditor's expertise (Bianchi, 2018). In addition, Baldauf and Steckel (2012) conducted an experimental study to examine the effect of joint audits on audit quality through using accuracy and consensus in the audit report. The findings reveal that auditors who perform joint audit achieve higher consensus and greater accuracy compared to auditors who work separately.

EC (2011b) indicates that reducing concentration in the audit market is a potential advantage of mandating joint audits. Prior studies show that audit market structure could actually change because of using joint audits in the long run (Kermiche and Piot, 2018). Albeit small audit firms could increase their market share in terms of the number of clients, but continually only audit a limited part of the market in terms of clients' size. In contrast, large audit firms, including the big four, will be able to increase their market share in terms of clients' size (Guo et al., 2017). In addition, prior research (Deng et al., 2014) shows that the proposal provided by EC to reduce concentration in the audit market by mandating participation of a small audit firm alongside big audit firms when performing joint audits may impair audit



quality. In such a situation, joint audits may cause a free-riding problem between the two audit firms and reduce the precision of audit evidence. EC (2011b) also discusses the relationship between big and non-big audit firms in a joint audit context. Due to the lack of a similar level of expertise as compared to the big firm, a non-big firm may act as a subordinate auditor.

EC (2011b) expresses its support to implement both joint audits and mandatory rotation of audit firms in order to ensure continuity in audit work and secure necessary information in case of replacing one of the two audit firms. Finally, EC (2011b) asserts that joint audits could reinforce the auditor's independence by establishing more balanced relationships between the audited entity and the two audit firms compared to the closed relationship in case of hiring one audit firm.

one of the most disadvantages of joint audits is increasing audit costs. Of course, appointing two audit firms, especially in the case of two big audit firms, is much more costly than designating a single audit firm. Prior research proved this axiom (Lesage et al., 2016; Holm and Thinggaard, 2012; Gonthier-Besacier and Schatt, 2007). The increase in audit cost is justified when considering the accompanying increase in audit quality. EC (2011b) points out that joint audits may expose the audited company to additional complexity and workload. The audited company must choose and communicate with two audit firms instead of one. In some instances, the audited entity may have to deal with the disagreement between the two audit firms. In addition, some issues may not be considered by any of participating audit firms after the allocation of audit work. Furthermore, joint audits may involve the possibilities of not reviewing the work performed by any of the audit firms.

Haak et al. (2018) analyzed the issue of allocating audit work between participating audit firms within joint audits context and its effect on audit quality. Normally, no formal or legal guidelines exist to indicate how to allocate the work in joint audits. For example, in the case of mandatory joint audits enforced by France, regulators only recommended a balance allocation between audit firms. The actual reality of the matter shows that this recommendation is not an obligation for any participating audit firms. Therefore, one of the audit firms may have higher audit fees than the other, which could lead to unbalance allocation of audit work. In addition, on voluntary joint audits, it is not clear which basis could be used to compensate participating audit firms or the way audit work is allocated between audit firms. It is hard for audited company and regulators to understand the nature and extent of coordination and

cooperation between audit firms regarding selecting and performing audit procedures. Furthermore, understanding the effects on audit quality in this context is not an easy matter.

Little is known about the nature of dual audits and its effect on audit quality. Dual audit is a rare practice. Because audit firms work on a separate basis within dual audits, it is expected that both audit quality and audit fees increase compared to single audits and joint audits. Each firm that participates in dual audits must use a superior level of professional scepticism. Of course, coordination and cooperation do not exist within the context of the dual audit. Instead, dual audits encourage competition between audit firms. Any of the participating audit firms understand that the other audit firm may perform a higher level of audit quality. Therefore, it is expected that audit risk could be minimized within dual audit leading to gather more evidence to avoid the negative effects on the reputation in comparison with the other participating audit firm. Many of the downsides of joint audits could be avoided within a dual context because each audit firm bears liability for its own audit work. In contrast, because of doing audit procedures by different audit firms for the same financial statements, audit fees could be doubled.

### **2.3 Egyptian environment**

The audit environment in Egypt is unique and very complex. Companies are classified into three broad categories, private companies, publicly traded companies and state-owned companies. In 1954, Law No. 26/ 1954 was issued to regulate work in Egyptian companies. Article 51 of Law No. 26/1954 allows companies to appoint one or more audit firms. Since then, Egypt is one of a few countries to permit joint audits on a voluntary basis. In 1961, the Egyptian government decided to control major activates of the economy to transit into socialism. Nationalization decrees issued in order to convert ownership of big companies into Egyptian State. Because of these changes, the Egyptian stock exchange was frozen. Following that, in 1964, the Governmental Accounting Office (GAO) role extended to audit companies owned by the Egyptian state. Recently Egypt renamed GAO to Accountability State Authority (ASA). ASA is directly working under the Egyptian president. The primary mission of ASA is to submit reports to the president and government to help them in planning economic centrally. ASA has become an important supervising body. All ministries and governmental units including state-owned companies are required to respond to ASA's reports. For state-owned companies, these reports contain huge remarks and recommendations regarding accounting

principles, performance evaluation and compliance with laws and regulations. Evidently, it became one of the important criteria to hire and discharge managers in state-owned companies.

During that period, since the Egyptian government controls most of the economy, private audit firms had a limited role. As a result, joint audits were not used, and mandatory audits performed by ASA were the most common type of audit. At the beginning of 1974, reverse political and socio-economic changes emerged. Privatization was an objective of Egyptian governments. Many state-owned companies attained loss and become a burden. Therefore, the government aimed to activate the Egyptian Exchange. Law No. 95/1992 reestablished Egyptian Stock Exchange (Amended by Law No. 123/2008). Then, Presidential Decree No. 191 of 2009 regulates the structure and governance of the Egyptian Exchange. The objective of these changes is to achieve two purposes. Firstly, selling most of the state-owned companies was the main goal. Establishing new big publicly owned companies to improve the economy is the second target. Egyptian government listed some state-owned companies in the Egyptian exchange. Accordingly, private investors could purchase parts of or full equity in state-owned companies. Then, new companies' law was issued in 1981. Nothing changed regarding permitting companies to appoint one auditor or more (Article 103 of Law 159/1981).

Therefore, joint audits came to be a common practice in the Egyptian audit market. The Egyptian government continues to control some companies in strategic industries. Obviously, the percentages of controlling differ based on strategic considerations. Thus, listed companies in the Egyptian Stock Exchange include both private companies and state-owned companies. If the State owns at least 25% of a company's equity, the law requires that ASA must audit its financial statements. Some of the state-owned companies understand that adhering only to law by forcedly engage ASA to perform the audit will deteriorate their image in the business world, so they appointed private audit firms to conduct the audit for the same financial statements alongside ASA. Since ASA has its own philosophy of audit function, it is impossible for ASA to cooperate with private audit firms. Therefore, dual audits emerged by allowing each audit firm to issue its own audit report separately. This form of audit is a mixture of mandatory and voluntary audits.

### **3. Literature Review and Hypotheses Development**

Prior research yields inconclusive results regarding the association between joint audits and audit quality in a mandatory environment. As joint audits are a mandatory requirement in France, prior research in the French context focused on the composition of audit firms

participating in the joint audits process. Marmousez (2009) uses a sample of 177 of the listed French companies to examine the role of joint auditors in influencing their clients to adopt more conservative accounting. Results show engaging two big auditor provide lower reporting quality. Therefore, it could be concluded that interaction between two big 4 audit firms is likely to be less useful than the interaction between a big 4 audit firm and a non-big 4 audit firm. Likewise, Lobo et al. (2017) conclude that using two big 4 audit firms together may not necessarily result in the highest level of audit quality. They examined the association between auditor pair composition and audit quality when booking an impairment and booking a larger impairment in the French environment. Results indicate that the big 4–non-big 4 auditor pair provides better audit quality than the big 4–big 4 four auditor pair. These findings indicate that the allocation of audit work and coordination between audit pair may affect audit quality. Kermiche and Piot (2018) confirm these findings in the French context by suggesting that mandatory joint audits are an important tool to reduce concentration in the audit market. They report little economic support in favour of two big 4 audit firm combination.

Haak et al. (2018) find that companies paid unequal audit fees within joint audits. This policy may lead to imbalanced audit work between engaged audit firms, reduce audit costs and increase audit quality at the same time. This practice is leading to a free-riding phenomenon in which one audit firm dominates audit work. In this case, the big audit firm will be more comfortable to work with non-big audit firms. Undeniably, a larger balance in performing the audit requires a high level of coordination and communication between participating audit firms. It may be difficult for a big audit firm to deal with another big audit firm since dealing with a non-big audit firm is much easier. In this, situation, a joint audit is becoming a special case of single audit. In contrast to previous studies, Francis et al. (2009) reported an opposite view about applying joint audits in France. The main finding of their study is that using two big audit firms together in joint audits will accomplish a higher level of quality and is preferable in case of information asymmetry. They assert that there is no need for a higher level of quality in the French setting in terms of highly concentrated stock ownership.

The Evaluation of the Danish experience provides another dimension to understand joint audits settings. Denmark abandoned joint audits after 75 years to reduce audit fees and having the same level of audit quality. Danish companies are given the liberty to choose joint audits on a voluntary basis rather than adhering to a mandatory legal requirement. In absence of a legal obligation to perform a joint audit, companies will prefer to use a single audit. Holm and Thinggaard (2012) explore the benefits of choosing two audit firms to audit the same financial statements in the Danish context in which a mandatory joint audits system is

abolished. They found that majority of Danish companies switched to single audit to pay fewer fees without reducing audit quality. Lesage et al. (2016) test the effect of joint audit on both audit fees and quality in the Danish context. They use data from non-financial listed Danish companies for the 2002–2010 periods. Results show that joint audit is associated with higher fees, but that the association between joint audit and abnormal accruals is insignificant. Holm and Thinggaard (2018) confirm the same conclusion about audit quality. No difference is found in terms of audit quality between performing audit function by a single big audit firm after switching to a single audit and any combination of audit pairs within joint audits.

A strand of literature investigates joint audits in different contexts in Europe other than France and Denmark. What makes such studies special is that they are evaluating joint audits in voluntary environments. Zerni et al. (2012) examine the association between voluntarily joint audit and audit quality in the Swedish environment in which some companies prefer to use joint audits. Results show that joint audits are associated with higher earnings conservatism, lower abnormal accruals, and better credit ratings. In contrast, joint audits lead to an increase in audit fees. Bisogno and De Luca (2016) explore the association between joint audits and earnings quality in the context of Italian small and mid-sized non-listed companies. Their empirical test revealed a positive association between joint audits and earnings quality. Some of the prior research examines differences between audit quality across some countries that use single audit and France. André et al. (2012) provide evidence that French companies pay higher audit fees compared to British and Italian companies which use single audits, albeit audit quality is not different in the three countries. Velte and Azibi (2015) tested the impact of joint audits on audit quality for French and German listed companies for the business years 2008-2012. They use abnormal working capital, abnormal accruals obtained from Kothari et al. (2005) and audit fees. The joint audit has no effect on audit quality in the two countries.

As dual audits are a rare event, little is known about the association between dual audits and audit quality. Lin et al. (2014) examine the impact of dual audits on auditor conservatism for listed companies in China. Results indicate that dual audits may be able only to constrain earnings management in companies aiming to increase income. Wang (2014) also examined dual audits in China. Findings show that dual audit improves audit quality of non-big audit firms. The dual audit is superior to a joint audit in terms of complying with IFRS requirements. Alanezi et al. (2012) tested the use of a dual-audit/joint-audit process and the level of compliance with IFRS in listed Kuwaiti financial institutions. Findings indicate that financial institutions that apply dual audit adhere to IFRS disclosure requirements more than other institutions that apply joint audit.

Since Egypt has a unique environment that permits both joint audits and dual audits under multiple audit mechanism, it will be useful to investigate the impact of multiple audit mechanism on audit quality. Article 103 of companies' law [159/1981] in Egypt give each company a right to designate one auditor or more. In the case of appointing more than one auditor, selected auditors should conduct the audit process together and issue a unified audit report. Therefore, sharing responsibility is the main issue of the joint audits process. Accordingly, two auditors will exert more effort in order to achieve higher financial reporting quality. In addition, law 144/1988 requires ASA to audit financial statements of companies that Egyptian State participates in 25% or more of its equity. ASA reports are not fully prepared in accordance with generally accepted auditing standards. Instead, the main purpose of these reports is to evaluate performance and degree of adherence to many laws and regulations other than auditing standards. ASA reports are mainly submitted to higher levels of the government and other official bodies. Many of the investment decisions and evaluation of managerial performance conducted by the Egyptian government are based on ASA reports. Some managers of state-owned companies think that preparing ASAs' report may harm the image of management. Most of these reports contain a long list of remarks and recommendation regardless of materiality. Since listed state-owned companies have a right under Law 159/1981 to select an auditor, they may decide to appoint a private audit firm to audit financial statements and issue a separate audit report. While some of these companies may decide to exercise this right, other companies may not. Because each audit firm has its own approach to audits, it is hard to combine ASA and a private company together as a pair of the joint audit process. Thus, the dual audit is allowed in Egypt at the discretion of Egyptian companies. By doing so, listed state-owned companies use different audit reports for different purposes. ASA reports are mainly prepared in accordance with Law 144/1988. Higher governmental authorities will make investment decisions and evaluate managerial performance based on these reports. Audit reports prepared by private audit firms are directed for financial statements' users and prepared in accordance with generally accepted auditing standards.

Consequently, joint audits and dual audits have the same features with different methods. Appointing more than one auditor voluntarily or mandatorily to ensure higher audit quality is the basic idea. This notion indicates that multiple audit mechanism via joint audits or dual audits may lead to achieving higher audit quality. Thus, the first hypothesis is as follows:

***H<sub>1</sub>: Multiple audit mechanism is positively associated with audit quality.***

***H<sub>1a</sub>: Joint audit is positively associated with audit quality.***

***H<sub>1b</sub>: Dual audit is positively associated with audit quality.***

In addition, it is also important to understand the consequences of both joint audits and dual audits. Based on the above literature, expectations about the consequences of multiple audits on cost of debt appear to be quite ambiguous because of two competing arguments. On the one hand, multiple audits may lead to an increase in audit quality which consequently may reduce information asymmetry; thus, we would expect to observe a negative association between multiple audits and the cost of debt. On the other hand, a multiple audit may lead to a decrease in audit quality which consequently may increase information asymmetry; thus, we would expect to observe a positive association between multiple audits and the cost of debt, implying a higher perceived level of risk.

Prior research investigates the association between auditor size as a proxy of audit quality and cost of debt (e.g., Pittman and Fortin, 2004; Causholli and Knechel, 2012; Choi and Lee, 2014) indicate a negative association between auditor size and cost of debt. Yet, limited studies explore the association between joint audits and the cost of debt. Karjalainen (2011) tests this hypothesis in Finland and reported a negative association between auditor size and cost of debt. Likewise, Al-Hadi et al. (2017) investigate the association between joint audits and cost of debt for a sample of non-financial publicly listed firms from the Gulf Cooperation Council countries. Findings show a significant negative effect of joint audits on the cost of debt. This leads to our second hypothesis as follows:

*H<sub>2</sub>: Multiple audit mechanism is negatively associated with the cost of debt.*

*H<sub>2a</sub>: Joint audit is negatively associated with the cost of debt.*

*H<sub>2b</sub>: Dual audit is negatively associated with the cost of debt.*

## 4. Method

### 4.1 Research model and variable definitions

This study will use the following main model to test our first hypothesis.

$$\begin{aligned} \text{AuditQuality}_{it} = & \alpha_0 + \alpha_1 \text{Type}_{it} + \alpha_2 \text{Control}_{it} + \alpha_3 \text{institute\_own}_{it} + \alpha_4 \text{family\_own}_{it} + \\ & \alpha_5 \text{Leverage}_{it} + \alpha_6 \text{LossSign}_{it} + \alpha_7 \text{CurrentRatio}_{it} + \alpha_8 \text{Zim}_{it} + \alpha_9 \text{ROA}_{it} + \alpha_{10} \text{CFO\_TA}_{it} + \\ & \alpha_{11} \text{Inherent}_{it} + \alpha_{12} \text{CashAssets}_{it} + \alpha_{13} \text{LnAge}_{it} + \alpha_{15} \text{LnTassets}_{it} + \alpha_{15} \text{Complex}_{it} + \text{Year Effects} \\ & + \varepsilon_{it} \end{aligned} \quad (1)$$

where *AuditQuality* is a proxy of audit quality for the company *i* and fiscal year *t*.

Table 1 shows the definition of variables in Equation 1

Insert Table 1 here

This study is following prior research (Defond and Park, 2001; Maijor and Vanstraelen, 2006; Francis et al., 2009; Velte and Azibi, 2015) by applying abnormal working capital accruals as a proxy of audit quality through the following model:

$$AWCA_t = WC_t - \left[ \left( \frac{WC_{t-1}}{S_{t-1}} \right) \times S_t \right] \quad (2)$$

where

- AWCA<sub>t</sub> = Abnormal working capital accruals in year t;
- WC<sub>t</sub> = Non-Cash working capital in year t;
- WC<sub>(t-1)</sub> = Non-Cash working capital in the year preceding year t;
- S<sub>t</sub> = Sales in the year t;
- S<sub>(t-1)</sub> = Sales in the year preceding year t.

Most of the control variables are chosen based on prior literature (e.g., Becker et al., 1998; Francis et al., 2009; Velte and Azibi, 2015; Zerni et al., 2012).

This study also will employ the following model to test our second hypothesis.

$$\begin{aligned} Cost_{it} = & \alpha_0 + \alpha_1 Type_{it} + \alpha_2 Control_{it} + \alpha_3 institue\_own_{it} + \alpha_4 family\_own_{it} + \\ & \alpha_5 Leverage_{it} + \alpha_6 LossSign_{it} + \alpha_7 CurrentRatio_{it} + \alpha_8 Zim_{it} + \alpha_9 ROA_{it} + \alpha_{10} CFO\_TA_{it} + \\ & \alpha_{11} Inherent_{it} + \alpha_{12} CashAssets_{it} + \alpha_{13} LnAge_{it} + \\ & \alpha_{14} LnTassets_{it} + \alpha_{15} Complex_{it} + \alpha_{16} AuditQuality_{it} + \text{Year Effects} \\ & + \varepsilon_{it} \end{aligned} \quad (3)$$

where *Cost* is a proxy of cost of debt for the company *i* and fiscal year *t*. Table 1 shows the definition of variables in Equation 1

## 4.2 Sample

Only non-financial companies are included in the sample. 1699 firm-year observations were collected for the 217 companies listed in the Egyptian Stock Exchange during the period 2009-2019. Due to the listing and delisting procedures and the decisions made by Egyptian Exchange, some companies are not included equally in the sample. Data had been collected by hand from the Egyptian Stock Exchange and companies' website and a financial website called Mubasher (<https://www.mubasher.info>).

### Insert Table 2 here

Most Egyptian companies upload PDF versions of both consolidated and unconsolidated financial statements at their websites. Each version includes the auditor's report(s), financial statements, and notes. The sample only includes unconsolidated financial



statements. Following Francis et al. (2009) and Maijor and Vanstraelen (2006), this paper scaled absolute abnormal working capital accruals by lagged total assets and observations with extreme values above 0.90 are not considered. Therefore, only 1699 observations are used when employing abnormal working capital accruals as a proxy of audit quality. The number of observations will be reduced upon using the modified-Jones model because of the inability of applying the model in the full sample set. Accordingly, only 1082 observations could be used. Details of the sample selection are presented in Table 2.

## **5. Results**

### **5.1 Descriptive Statistics and Correlation Matrix**

Table 3 reports descriptive statistics for all variables. The absolute abnormal working capital accruals |AWCA| have a mean value of 0.12. The cost of debt has a mean value of 0.02. Multiple audit mechanism is performed in 29% of the Egyptian market. Both joint audits and dual audits are conducted almost evenly. Almost 19% of firms achieve a net loss during our sample. In terms of firm profitability, the sample has a mean of 6 percent of ROA ratio. In addition, the average institutional ownership is 43 percent and the average CEO duality is 15 percent.

Insert Table 3 here

The correlation matrix is shown in Table 4. Table 4 indicates correlations based on 1699 observations and displays the associations between AWCA, cost of debt and other variables. Only eight variables are correlated to AWCA. Surprisingly, MAM, joint audits and dual audits have an insignificant association with the absolute abnormal working capital accruals. more importantly, Table 4 documents that while the cost of debt is positively associated with joint audits, it is negatively associated with dual audits.

Insert Table 4 here

### **5.2 Multivariate Analysis: Audit quality**

#### **5.2.1 Multiple audit mechanism and audit quality**

Table 5 presents the results of the regression models used to test H1. Model 1 of Table 5 reports empirical results of the relationship between multiple audit mechanisms and overall audit quality (the level of abnormal working capital accruals). Yet, it does not present insight as to the overall level of accruals. The explanatory power of Model 1 of Table 5 appears relatively satisfactory. The coefficient of determination is 5 percent. Model 1 of Table 5 shows

that the relationship between multiple audit mechanisms and overall audit quality is not significant, suggesting that multiple audit mechanisms generally do not provide better quality compare to single audits. Thus, H1 is not supported. This result is in line with the results of André et al. (2012) and Velte and Azibi (2015).

following Lin et al. (2014) who suggest that dual audits may be able only to constrain earnings management in companies aiming to increase income, we split the full sample into two sub-samples including income-increasing and income-decreasing abnormal working capital accruals (i.e.,  $AWCA > 0$  and  $AWCA < 0$ ) and then estimate Eq (1) independently for both sub-samples. The findings of these analyses are shown in Models (2) and (3) of Table 5. Model 2 of Table 5, for the income-increasing abnormal working capital accruals, suggests that the coefficient of MAM is negative and not significant ( $\beta = -0.004$ ,  $t = -0.40$ ). For income-decreasing abnormal accruals, MAM is estimated to be positive and significant at the 10 percent level ( $\beta = 0.024$   $t = 1.87$ ). A positive sign implies that the abnormal working capital accruals of multiple audit clients are bigger on average (i.e., more income- decreasing) than the accruals of single-audits. This provides initial evidence that multiple audits are associated with a decrease in audit quality.

### Insert Table 5 here

#### 5.2.2 Joint audits and audit quality

To investigate the effect of joint audits on audit quality, Joint is used as a test variable and the same audit quality proxies are used. Table 5 shows the results of OLS regression. No significant association is found between joint audits and audit quality. The results for Models 5 and 6 of Table 5 (i.e., the income-increasing and income-decreasing, respectively) suggests that there is no association between joint audits and audit quality. Therefore, joint audits are not producing a higher level of audit quality. Subsequently, H1a is not supported. The correlation matrix shows a significant negative association between joint audits and both operating cash flows and financial distress score. In addition, joint audits are correlated positively with Big 4. Thus, companies may choose joint audit to convince financial statements users with their intention to produce higher financial reporting quality, no matter the increase in audit costs.

### 5.2.3 Dual audits and audit quality

To examine the effect of dual audits on audit quality, OLS regression is performed using Dual as a test variable in models 4, 5 and 6 of Table 5. Surprisingly, there is a positively (negative) association between dual audits and AWCA (audit quality). Accordingly, dual audits do not lead to achieving higher audit quality and H1b is partially not supported. When we split the full sample into income-increasing and income-decreasing abnormal working capital accruals subsamples, the estimated positively (negative) association with AWCA (audit quality) holds for income-decreasing subsample only, indicating that dual audits clients are associated with more accounting conservatism practices (i.e., income-decreasing abnormal working capital accruals). We also found that dual audits are negatively (positively) but insignificantly associated with AWCA (audit quality). Our results are in line with litigation and reputational risk fears offering motivations for auditors to favour conservative accounting alternatives (i.e., income decreasing discretionary accruals). This implies that firms opting to employ dual audits have a higher level of earnings conservatism.

To summarize, results in Table 5 offer evidence that, compared to single audits, those audited by multiple audits are not associated with audit quality proxied by the level of abnormal working capital accruals, while those audited by dual audits are negatively associated with lower audit quality. This result holds for income-decreasing subsample only.

## 5.3 Multivariate Analysis: Cost of debt

### 5.2.1 Multiple audit mechanism and cost of debt

Table 6 represents the findings of the regression models used to test H2. Model 1 of Table 6 examines the relationship between multiple audit mechanisms and the cost of debt. The explanatory power of Model 1 of Table 6 appears relatively high. The coefficient of determination is 15 percent. Model 1 of Table 6 documents that the relationship between multiple audit mechanisms and cost of debt is positive and significant at the 5% level, suggesting that the choice of multiple audit mechanisms is related to significant increases in the cost of debt, implying a higher perceived level of risk. Thus, H2 is supported. This provides initial evidence that multiple audits are associated with an increase in the cost of debt.

Insert Table 5 here

### 5.2.2 Joint audits and cost of debt

To investigate the effect of joint audits on the cost of debt, Joint is used as a test variable. Model 4 of Table 6 shows the results of our OLS regression. A positive and significant association is found between joint audits and the cost of debt at the 1% level. Our results imply that joint audits are related to significant increases in the cost of debt, implying a higher perceived level of risk. Thus, H2a is supported.

Insert Table 6 here

### 5.2.3 Dual audits and cost of debt

We report our analysis investigating the impact of dual audits on the cost of debt in Model 4 of Table 6. Our results show that there is no relation between dual audits and the cost of debt ( $\beta=-0.002$ ,  $t=-0.63$ ). Accordingly, dual audits do not lead to achieving a lower cost of debt and, thereby, H2b is not supported. Dual audits represent a special case of multiple audit mechanism in the Egyptian audit market. It may be argued that dual audits are superior to other types of audits under the claim that participating audit firms are watching each other. Audit firms may be exerting additional effort under dual audits to reduce the audit risk and avoid negative consequences affecting their reputation in case of not detecting material misstatement due to fraud or errors. Companies consider dual audits mechanism to understand the accompanying increase in audit costs. The intent of using dual audit is not clearly understood. It may improve the image and reputation of state-owned companies in the financial market. Listed state-owned companies decide to use dual audit may reflect their desire to avoid a long list of remarks and recommendations in ASA reports. Also, some state-owned companies may employ dual audits to distinguish themselves from other companies that are performing badly or have severe financial losses. The correlation matrix shows that some factors including the return on assets, company size, complexity, and operating cash flows are positively associated with dual audits.

All in all, complicating audit processes through joint audits or dual audits will add many downsides without solving the core problems. Joint audits require a high degree of cooperation and appropriate allocation of audit work. Dual audits may produce a conflict of opinions that negatively affect the decisions of users. Sharing responsibilities of a profession depends on judgment, such as audit, which may cause liability to be diluted and achieve poor audit quality.

## 6. Supplemental Analysis

We utilize a number of additional analyses to ascertain the robustness of our findings. First, we use an alternate measure of accrual earnings management. Specifically, we measured earnings management by using the modified-Jones model (Chatterjee, 2021; Gerged et al., 2020; Tessema et al., 2018) instead of the working capital model. Modified-Jones model is applied to measure audit quality through abnormal accruals. This model could not be employed for the full sample due to its limitation and nature of the way the Egyptian Stock Exchange classifies listed companies. Egyptian Stock Exchange classifies non-financial listed companies into sixteen sectors. Two of these sectors include only one company. Some other sectors do not include the required number to perform the modified-Jones model. The model requires at least ten observations in each sector. Therefore, these sectors did not meet the required threshold to compute abnormal accruals.

Following Dechow et al. (1995) and Kothari et al. (2005), abnormal accruals will be computed using the modified-Jones model as follows:

$$\frac{TOT\_ACC_{it}}{Tassets_{t-1}} = \alpha_0 + \beta_1 \frac{1}{Tassets_{t-1}} + \beta_2 \frac{(\Delta Sales_t - \Delta AR_t)}{Tassets_{t-1}} + \beta_3 \frac{PPE_t}{Tassets_{t-1}} + \beta_4 ROA_t + \varepsilon_t \quad (3)$$

where:

- TOT\_ACC<sub>i,t</sub> = Total accruals
- Tassets<sub>i,t-1</sub> = Lagged total assets
- ΔSales<sub>i,t</sub> = Change in sales between year t-1 and year t
- ΔAR<sub>i,t</sub> = Change in accounts receivable year t-1 and year t
- PPE<sub>i,t</sub> = Gross property, plant, and equipment
- ROA<sub>i,t</sub> = Return on assets
- ε<sub>i,t</sub> = Residual term of equation (3) = Abnormal accruals

Our results are presented in Table 7. Our results are generally qualitatively similar to those stated in Table 7. Specifically, our results suggest that joint audits are not associated with audit quality. In contrast, the dual audit is positively associated with income decreasing discretionary accruals. These results are in line with litigation and reputational risk fears offering motivations for auditors to favour conservative accounting alternatives (i.e., income decreasing discretionary accruals). This implies that firms opting to employ dual audits have a higher level of earnings conservatism.

Second, under the main analysis, on whether multiple audits are more likely to reduce the cost of debt, our analysis indicates, so far, that there is no relationship. To further examine

whether lenders consider earnings management, we classify companies into high and low earnings management groups, depend on whether the earnings management level is greater or less than the mean.

### Insert Table 7 here.

The OLS estimations presented in Models 2, 3, 5 and 6 of Table 7 suggest that our results for all firms are driven mostly by the level of earnings management. For example, in Model 3 of Table 7 multiple audits are related to significant increases in the cost of debt in lower earnings management firms ( $\beta = 0.007$ ,  $t = 2.20$ ), while in higher earnings management firms the relationship is not significant ( $\beta = 0.000$ ,  $t = 0.17$ ). Per se, it looks that the significant influence of multiple audits on the cost of debt is likely to be more pronounced among lower than higher earnings management sample. also, Models 4, 5 and 6 of Table 7 suggest that the significant influence of joint audits on the cost of debt is not likely to be driven by earnings management.

More importantly, our results in Models 4, 5 and 6 of Table 7 suggest that dual audits decrease the cost of debt only in companies with high earnings management. Specifically, Model 5 of Table 7 implies that dual audits are negatively and significantly associated with the cost of debt ( $\beta = -0.011$ ,  $t = -3.18$ ). This result also is not surprising as this result complements our earlier results, which document that dual audits are more likely to increase income decreasing discretionary accruals (conservative accounting), and consequently affected the cost of debt negatively.

## **7. Summary and Conclusion**

This study investigates the effects of multiple audit mechanisms on audit quality and cost of debt. Given that two heads are better than one, it is argued that joint audits are superior. Using a sample of Egyptian listed companies between 2009 and 2019, we document two main results. First, results indicate that joint audits are not associated with both measures of audit quality. In contrast, the dual audit is positively (negatively) associated with abnormal accruals (audit quality). This result mainly occurs in companies aiming to decrease income. Second, our evidence also indicates that the choice of multiple audit mechanisms especially joint audits is related to significant increases in the cost of debt, implying a higher perceived level of risk. Further, dual audits decrease the cost of debt only in companies with high earnings management. This study adds to the literature on whether the preference of income-increasing

or income decreasing discretionary accruals is related to multiple audit mechanism and consequently affected the cost of debt. Hence, these results offer a justification for disagreement in the results of the extant literature on the joint audits-audit quality (cost of debt) relationship.

Our study contributes to the current auditing literature in the following ways. First, our study, to our knowledge, is first to investigate whether multiple audits affect audit quality and whether the preference of income-increasing or income decreasing discretionary accruals is associated with multiple audit mechanisms more specifically. Second, we also add to the cost of debt literature, but more notably, we believe that we offer useful insight into the reasons for and effects of multiple audits in the Egyptian setting. Therefore, we contribute to the previous research that finds benefits associated with dual audits. Our findings highlight the importance of investigating both mandatory (dual) and voluntary (joint) multiple audits to obtain reliable conclusion about the consequences of multiple audits in the Egyptian market. Third, this study complements extant literature that focuses on a mandatory or voluntary joint audit setting, by examining this association in the Egyptian context, where both mandatory and voluntary joint audits exist. Fourth, our results backing the concern that multiple audits may not be effective in constrain earnings management. Fourth, Egypt lacks professional bodies aiming to set the standards of accounting, auditing and quality assurance, it is essential to consider a reform of the enforced laws and regulation. Quality assurance of audit procedures applied by audits firms may be the best way to accomplish a higher level of audit quality. Lastly, the Code of Corporate Governance issued by the Egyptians institute of Directors of the Egyptian Financial Regulatory Authority (2016) encourages joint audit, especially in large firms. Our results suggest that single audits may outperform compare to multiple audits counterparts.

Our study suffers from the traditional limitations of this kind of research. First, the strength of the cost of debt measure is subject to the appearance of interest expense in financial statements. This may lead to a potential measurement error in our test. We have attempted to mitigate this concern by using both working capital and modified jones models. Second, the generalizability of the findings is limited by using abnormal accruals. Future studies may employ real earnings management. Future studies also may explore how audit firms assign their resources and communicate with other auditors in multiple audits.





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## Tables

Table 1: Variable definitions

Variable	Definition
AuditQuality	Audit quality measured by absolute abnormal working capital accruals  AWCA  and absolute Abnormal Accruals  ABACC  computed from modified-Jones model.
Cost	Interest expenses/ short-term and long-term debts
Type	MAM is a dummy variable equal to 1 if multiple audit mechanism exists, and 0 otherwise. <ul style="list-style-type: none"> <li>• Joint is a dummy variable equal to 1 if a joint audit exists, and 0 otherwise.</li> <li>• Dual is a dummy variable equal to 1 if a dual audit exists, and 0 otherwise</li> </ul>
ZIM	Financial stress score, calculated from Zmijewski's (1984) model
Control	Dummy variable equal to 1 if there is controlling shareholder own at least 25% stake of voting power, and 0 otherwise
Institue_own	Percentage of shares owned by Institutions
Family_own	Percentage of shares owned by dominant Family
Leverage	Total liabilities divided by total assets
CurrentRatio	Current assets ÷ total liabilities
ROA	Net income / Total Assets
Losssign	Dummy variable equal to 1 if earnings are negative, and 0 otherwise
LnTassets	Natural logarithm of total assets
Inherent	(Accounts receivables + Inventory) / Total Assets
CashAssets	Cash and Cash equivalents / Total Assets
CFO_TA	Operating cash flows / Total assets in the prior year
LnAge	Natural logarithm of Company age
Complex	Sales / Total assets in the prior year
ROA	Return on assets

Table 2: Sample

Egyptian listed firms	2713
- Egyptian listed financial firms and observations with missing data	1014
Egyptian listed non-financial firms	1699
- observations with missing ownership data	184
Available observations for ownership variables	1515

Table 3: Descriptive statistics

Variable	N	Mean	P50	SD	Min	Max
AuditQuality	1631	0.12	0.07	0.14	0.00	0.89
Cost	1698	0.02	0.00	0.04	0.00	1.12
Mam	1699	0.29	0.00	0.45	0.00	1.00
Joint	1699	0.14	0.00	0.34	0.00	1.00
Dual	1699	0.15	0.00	0.35	0.00	1.00
Control	1515	0.70	1.00	0.46	0.00	1.00
institue_own	1515	0.43	0.50	0.34	0.00	1.00
family_own	1515	0.14	0.02	0.22	0.00	3.00
Leverage	1699	0.45	0.39	0.47	0.00	8.77
LossSign	1699	0.19	0.00	0.39	0.00	1.00
CurrentRatio	1699	4.95	1.57	21.75	0.02	680.81
Zim1	1699	0.13	0.01	0.25	0.00	1.00
ROA	1699	0.06	0.04	0.14	-1.04	1.26
CFO_TA	1699	0.06	0.04	0.21	-4.51	1.74
Inherent	1698	0.42	0.39	0.29	0.00	3.48
CashAssets	1699	0.12	0.06	0.17	0.00	2.47
LnAge	1699	3.27	3.33	0.67	0.69	4.88
LnTassets	1699	19.78	19.81	1.84	13.23	24.90
Complex	1698	0.72	0.53	0.81	-0.03	6.83

Table 4: Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
(1) AuditQuality	1.00																			
(2) Cost	-0.08*	1.00																		
(3) Mam	-0.01	0.05	1.00																	
(4) Joint	-0.02	0.12*	0.64*	1.00																
(5) Dual	0.00	-0.05*	0.67*	-0.12*	1.00															
(6) Control	-0.05	0.10*	0.02	-0.06*	0.09*	1.00														
(7) institue_own	-0.02	0.10*	0.10*	-0.07*	0.21*	0.41*	1.00													
(8) family_own	0.05	-0.01	-0.06*	0.11*	-0.19*	0.00	-0.58*	1.00												
(9) Leverage	0.09*	0.04	-0.06*	-0.03	-0.04	0.11*	0.11*	-0.07*	1.00											
(10) LossSign	0.07*	-0.01	-0.06*	0.01	-0.08*	-0.02	0.05	-0.04	0.18*	1.00										
(11) CurrentRatio	0.02	-0.07*	-0.01	0.02	-0.04	-0.10*	-0.12*	0.11*	0.00	0.05*	1.00									
(12) Zim1	0.10*	0.01	-0.10*	-0.06*	-0.05*	0.17*	0.10*	-0.03	0.57*	0.31*	-0.07*	1.00								
(13) ROA	-0.03	-0.04	0.07*	-0.02	0.11*	-0.02	0.02	-0.03	-0.37*	-0.50*	-0.03	-0.41*	1.00							
(14) CFO_TA	-0.07*	-0.03	0.03	-0.04	0.07*	0.06*	0.06*	-0.03	-0.13*	-0.18*	-0.05*	-0.14*	0.29*	1.00						
(15) Inherent	0.13*	0.03	-0.09*	-0.03	-0.09*	0.05	-0.01	0.02	0.16*	-0.09*	-0.01	0.21*	-0.02	-0.10*	1.00					
(16) CashAssets	0.02	-0.16*	0.02	-0.08*	0.10*	0.03	0.05*	-0.05*	-0.06*	-0.10*	0.08*	-0.03	0.25*	0.20*	-0.03	1.00				
(17) LnAge	-0.06*	0.03	0.04	-0.11*	0.16*	0.14*	0.36*	-0.37*	0.13*	0.01	-0.12*	0.14*	-0.01	0.01	0.03	0.07*	1.00			
(18) LnTassets	-0.10*	0.15*	0.24*	0.06*	0.26*	0.19*	0.47*	-0.36*	0.05*	-0.10*	-0.19*	0.04	0.13*	0.08*	-0.12*	0.01	0.37*	1.00		
(19) Complex	-0.03	0.07*	0.08*	0.01	0.08*	0.10*	0.07*	-0.03	0.07*	-0.17*	-0.07*	0.04	0.27*	0.16*	0.17*	0.16*	0.08*	-0.02	1.00	

Notes: \* shows significance at the 0.05 level. Table 1 fully defines all the variables used.



Table 5: The association between multiple audits and audit quality using AWCA model

	(1)	(2)	(3)	(4)	(5)	(6)
	Audit Quality	Income- Increasing	Income- Decreasing	Audit Quality	Income- Increasing	Income- Decreasing
Mam	0.011 (1.21)	-0.004 (-0.40)	0.024* (1.87)			
Joint				-0.001 (-0.10)	-0.005 (-0.34)	0.000 (0.02)
Dual				0.025** (2.10)	-0.003 (-0.18)	0.046*** (2.71)
Control	-0.025*** (-2.69)	-0.016 (-1.41)	-0.035*** (-2.51)	-0.025*** (-2.76)	-0.016 (-1.42)	-0.036*** (-2.60)
institue_own	0.040*** (2.68)	0.040** (2.15)	0.047** (2.04)	0.038*** (2.60)	0.039** (2.14)	0.044* (1.93)
family_own	0.042** (2.02)	0.001 (0.06)	0.097** (2.33)	0.046** (2.16)	0.001 (0.07)	0.103** (2.49)
Leverage	0.021* (1.75)	0.021 (1.48)	0.049* (1.79)	0.021* (1.76)	0.021 (1.48)	0.052* (1.87)
LossSign	0.028** (2.28)	0.055*** (2.67)	0.011 (0.68)	0.028** (2.33)	0.055*** (2.67)	0.013 (0.79)
CurrentRatio	0.000 (0.01)	0.000 (0.16)	-0.000 (-0.18)	0.000 (0.02)	0.000 (0.16)	-0.000 (-0.26)
Zim1	0.041* (1.93)	0.020 (0.63)	0.030 (1.00)	0.040* (1.89)	0.020 (0.64)	0.027 (0.86)
ROA	0.107* (1.65)	0.307*** (3.42)	-0.038 (-0.35)	0.105 (1.62)	0.306*** (3.41)	-0.038 (-0.36)
CFO_TA	-0.038 (-1.03)	-0.184*** (-3.12)	0.082* (1.80)	-0.041 (-1.10)	-0.184*** (-3.11)	0.076 (1.64)
Inherent	0.061*** (3.34)	0.098*** (4.17)	0.029 (1.29)	0.062*** (3.37)	0.098*** (4.17)	0.030 (1.35)
CashAssets	0.022 (0.74)	0.085*** (2.86)	-0.023 (-0.69)	0.019 (0.63)	0.085*** (2.82)	-0.030 (-0.87)
LnAge	-0.006 (-1.03)	-0.006 (-0.68)	-0.010 (-1.22)	-0.008 (-1.19)	-0.006 (-0.67)	-0.012 (-1.41)
LnTassets	-0.007*** (-2.60)	-0.007** (-2.03)	-0.007* (-1.72)	-0.007*** (-2.64)	-0.007** (-2.03)	-0.007* (-1.70)
Complex	-0.012** (-2.16)	-0.017* (-1.95)	-0.013* (-1.96)	-0.012** (-2.18)	-0.017* (-1.95)	-0.013** (-1.98)
_cons	0.228*** (4.38)	0.208*** (3.12)	0.236*** (2.99)	0.234*** (4.48)	0.208*** (3.11)	0.240*** (3.06)
N	1453	708	745	1453	708	745
R-sq	0.05	0.12	0.07	0.06	0.12	0.07
adj. R-sq	0.04	0.10	0.05	0.05	0.10	0.05

Notes: The above table represents regression coefficients and t statistics in parentheses \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Table 1 fully defines all the variables used.

Table 6: The association between multiple audits and cost of debt

	(1)	(2)	(3)	(4)	(5)	(6)
	Cost	High.EM	Low.EM	Cost	High.EM	Low.EM
MAM	0.007** (2.56)	0.000 (0.17)	0.007** (2.20)			
Joint				0.016*** (4.94)	0.011*** (3.42)	0.013*** (3.45)
Dual				-0.002 (-0.63)	-0.011*** (-3.18)	-0.000 (-0.02)
ABSEMKothari	0.017 (1.41)			0.017 (1.31)		
Control	0.006** (2.48)	0.001 (0.20)	0.008*** (2.74)	0.007*** (2.73)	0.001 (0.42)	0.008*** (2.84)
institue_own	0.002 (0.24)	0.010** (2.03)	0.004 (0.34)	0.003 (0.37)	0.009* (1.73)	0.005 (0.45)
family_own	0.007 (1.60)	0.033*** (3.74)	0.003 (0.63)	0.006 (1.32)	0.027*** (3.00)	0.002 (0.38)
Leverage	0.018** (2.38)	0.002 (1.21)	0.017** (2.01)	0.018** (2.34)	0.002 (1.06)	0.017** (1.98)
LossSign	-0.002 (-0.69)	-0.001 (-0.31)	-0.005 (-1.27)	-0.002 (-0.70)	-0.001 (-0.42)	-0.005 (-1.25)
CurrentRatio	-0.000*** (-2.90)	-0.000*** (-3.47)	-0.000* (-1.83)	-0.000*** (-3.41)	-0.000*** (-3.20)	-0.000** (-2.28)
Zim1	-0.015* (-1.87)	-0.003 (-0.68)	-0.022** (-2.32)	-0.013* (-1.69)	-0.004 (-0.76)	-0.021** (-2.18)
ROA	-0.013 (-0.77)	0.008 (0.75)	-0.051** (-2.45)	-0.007 (-0.43)	0.008 (0.72)	-0.045** (-2.27)
CFO_TA	-0.013 (-1.56)	-0.010 (-1.53)	0.011 (0.46)	-0.012 (-1.38)	-0.009 (-1.30)	0.011 (0.44)
Inherent	0.003 (0.81)	0.013* (1.94)	0.003 (0.67)	0.003 (0.69)	0.013** (1.98)	0.003 (0.56)
CashAssets	-0.031*** (-3.93)	-0.056*** (-4.47)	-0.024** (-2.55)	-0.030*** (-3.96)	-0.055*** (-4.58)	-0.023** (-2.52)
LnAge	-0.003 (-1.47)	-0.000 (-0.11)	-0.005** (-2.20)	-0.001 (-0.65)	0.001 (0.56)	-0.004* (-1.77)
LnTassets	0.002* (1.73)	0.004*** (5.47)	0.003** (2.48)	0.001 (1.39)	0.004*** (5.63)	0.002** (2.19)
Complex	-0.004*** (-3.16)	-0.001 (-0.34)	-0.003** (-2.26)	-0.004*** (-3.11)	-0.000 (-0.27)	-0.003** (-2.11)
_cons	0.008 (0.51)	-0.053*** (-3.28)	-0.005 (-0.31)	0.009 (0.58)	-0.057*** (-3.54)	-0.003 (-0.19)
N	1082	791	722	1082	791	722
R-sq	0.15	0.28	0.12	0.15	0.31	0.12
adj. R-sq	0.12	0.25	0.08	0.13	0.27	0.09

Notes: The above table represents regression coefficients and t statistics in parentheses \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Table 1 fully defines all the variables used.

Table 7: The association between multiple audits and audit quality using Kothari model

	(1) Kothari	(2) Income- Increasing	(3) Income- Decreasing	(4) Kothari	(5) Income- Increasing	(6) Income- Decreasing
MAM	0.004 (0.51)	0.001 (0.17)	0.012* (1.95)			
Joint				0.005 (0.44)	0.002 (0.20)	0.003 (0.29)
Dual				0.002 (0.25)	0.002 (0.28)	0.018** (2.16)
Control	-0.000 (-0.04)	0.001 (0.17)	0.008 (1.18)	-0.000 (-0.03)	0.001 (0.15)	0.008 (1.13)
institue_own	0.001 (0.04)	0.001 (0.11)	-0.018 (-1.32)	0.001 (0.05)	0.001 (0.10)	-0.018 (-1.31)
family_own	-0.011 (-1.06)	0.000 (0.00)	-0.016 (-0.97)	-0.012 (-1.07)	0.000 (0.01)	-0.013 (-0.83)
Leverage	-0.000 (-0.02)	0.003 (0.32)	-0.017 (-1.06)	-0.000 (-0.02)	0.003 (0.32)	-0.017 (-1.03)
LossSign	-0.013* (-1.76)	-0.022** (-2.47)	0.000 (0.05)	-0.013* (-1.76)	-0.022** (-2.46)	0.000 (0.06)
CurrentRatio	0.000 (0.34)	-0.000 (-0.09)	0.000*** (4.35)	0.000 (0.32)	-0.000 (-0.10)	0.000*** (4.59)
Zim1	0.065*** (2.95)	0.005 (0.31)	0.044** (2.14)	0.065*** (2.96)	0.005 (0.30)	0.042** (2.02)
ROA	0.020 (0.42)	0.263*** (3.67)	-0.296*** (-3.65)	0.021 (0.44)	0.262*** (3.65)	-0.301*** (-3.70)
CFO_TA	0.099 (1.12)	-0.545*** (-12.20)	0.604*** (7.94)	0.099 (1.12)	-0.545*** (-12.17)	0.604*** (7.90)
Inherent	0.001 (0.13)	-0.007 (-0.79)	0.012 (1.16)	0.001 (0.12)	-0.007 (-0.78)	0.013 (1.27)
CashAssets	-0.003 (-0.21)	0.028* (1.71)	-0.005 (-0.30)	-0.003 (-0.21)	0.028* (1.69)	-0.005 (-0.28)
LnAge	-0.013** (-2.24)	0.002 (0.56)	-0.001 (-0.16)	-0.013** (-2.27)	0.002 (0.53)	-0.002 (-0.31)
LnTassets	0.000 (0.12)	-0.000 (-0.25)	0.001 (0.34)	0.000 (0.09)	-0.000 (-0.27)	0.001 (0.35)
Complex	0.013*** (2.74)	0.014*** (3.16)	-0.009* (-1.90)	0.013*** (2.74)	0.014*** (3.14)	-0.009* (-1.90)
_cons	0.089** (2.32)	0.044 (1.28)	0.007 (0.17)	0.089** (2.34)	0.045 (1.31)	0.009 (0.23)
N	1082	531	551	1082	531	551
R-sq	0.08	0.55	0.64	0.08	0.55	0.64
adj. R-sq	0.06	0.54	0.63	0.06	0.54	0.63

Notes: The above table represents regression coefficients and t statistics in parentheses \* p<0.10, \*\* p<0.05, \*\*\* p<0.01. Table 1 fully defines all the variables used.