Audit quality, political connections and information asymmetry: evidence from banks in gulf co-operation council countries

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Abstract

Purpose – The purpose of this paper is to investigate the impact of audit quality on information asymmetry for a sample of leading listed local banks in the Gulf Cooperation Council (GCC). In addition, the paper examines whether a firm's political connections moderate the association between audit quality and information asymmetry.

Design/methodology/approach – The author employs country fixed effects to examine the impact of audit quality on information asymmetry. The paper uses a sample of 49 leading listed local banks across the GCC and 236 bank-year observations, over the period of 2012–2016.

Findings – Using trading volume, trade value and stock return volatility as proxies for information asymmetry and audit quality through auditors' opinion and audit size, the paper documents that audit quality plays an important role in improving the quality of financial information reporting by providing greater independent assurance of the credibility of financial reports. The paper also documents that a firm's political connections have no effect on the association between audit quality and information asymmetry, indicating that the beneficial effects of audit quality are no greater for politically connected firms than for similar but politically unconnected firms.

Practical implications – The findings of the study help policymakers, standard-setters and regulators to understand the potential adverse effect of political connections on the role of audit quality on information asymmetry. The study also provides important insights for audit regulators to better identify and understand the benefits of audit quality and to take policy matters that influence audit quality seriously.

Originality/value – The study increases our understanding of the impact of audit quality on the level of information asymmetry in different economic, legal and political institutions, regulatory and litigation incentives and social contexts compared to that of research conducted using data collected from developed and other emerging countries. This will help to widen our knowledge on the role of audit quality on information asymmetry across the globe.

Keywords Audit quality, Political connections, Information asymmetry, GCC, Emerging markets, Accrual, Big N

Paper type Research paper

1. Introduction

The growing complexity of business transactions, accounting standards and political and corruption scandals has increased the demand for high-quality audits. Previous studies have documented that higher-quality audits provide greater independent assurance of the credibility and quality of financial reports (e.g. Lin and Hwang, 2010; Defond and Zhang, 2014; Healy and Palepu, 1993; Alzoubi, 2018). Thus, higher-quality audits can improve resource allocation and contracting efficiency while also reducing the information asymmetry between managers and outside investors by allowing outsiders to verify the validity of financial statements (e.g. Almutairi *et al.*, 2009; Hakim and Omri, 2010). For example, DeAngelo (1981) suggests that large audit firms provide high audit quality due to

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their stronger reputation incentives and greater competencies. Similarly, DeFond (1992) argues that large audit firms have a higher degree of independence and expertise and are better able to discover and report irregularities and misstatements in financial reports. Consistent with this view, several studies have documented that large audit firms are associated with superior financial reporting outcomes (Becker *et al.*, 1998; Chaney *et al.*, 2011; Francis *et al.*, 2009; Piot, 2010; Pittman and Fortin, 2004). For example, Chen *et al.* (2008) showed that higher audit quality is associated with fewer discretionary accruals, indicating a higher financial reporting quality. Similarly, Chi *et al.* (2011) and Alzoubi (2018) examined the relation between earnings management and audit quality in companies that have incentives to manage earnings and found that high audit quality is negatively associated with the level of accrual earnings management, indicating that high-quality auditors constrain accrual earnings management.

Although numerous studies have examined the effect of audit quality on financial reporting quality, most of them were conducted using data from developed markets. Thus, the purpose of this study is to investigate whether audit quality effects on information asymmetry are particular to the developed market, or if they are also prominent in the Gulf Cooperation Council (GCC) countries (namely Bahrain, Oman, Kuwait, Saudi Arabia, Qatar and United Arab Emirates), where the culture, religion, political institutions, legal environment, financial and tax reporting requirements, audit requirements and economic characteristics are significantly different. This study also examines whether political connections have no effect on the association between audit quality and information asymmetry using data from the GCC. I expect the role of auditors in independently verifying financial reports to be more important in the GCC, where the quality of financial reporting is generally poorer.

Following previous studies (e.g. Al-Hadi *et al.*, 2016; Elbadry *et al.*, 2015), I used trading volume (*TR_VOLUME*), trading value (*TR_VALUE*) and return volatility (*VOLATILITY*) to measure the level of information asymmetry. I follow prior research in the audit literature and employed going-concern opinion and Big *N* auditors to measure audit quality. An indicator variable that equals 1 if the firm is politically connected and 0 otherwise was used to measure a firm's political connections. Several control variables were also included in the regression analyses based on variables identified in the literature related to information asymmetry [1].

Using a sample of leading listed local banks across the GCC for the fiscal years 2012–2016, I found that audit quality measured using a joint audit conducted by two Big 4 auditors is significantly negatively associated with the level of information asymmetry. The results indicate that audit quality plays an important role in the quality of financial reporting by providing greater assurance that the financial statements faithfully reflect the firm's underlying economics and flow through to the allocation of information among traders. However, I also found that issuing auditor's going-concern opinion is positively associated with the level of information asymmetry, indicating that auditors issuing a going-concern opinion raise concerns about the credibility of the firm's financial reports and higher adverse selection risk in the market and thus introduce noise in the assessment of the financial reports that may lead to greater information asymmetry. Further, I found that political connections have no effect on the association between audit quality and information asymmetry, indicating that the beneficial effects of audit quality are no greater for politically connected firms than for similar but politically unconnected firms.

This study contributes to the literature in several ways. First, it increases our understanding of the impact of audit quality on the level of information asymmetry among traders in different economic, legal and political institutions, regulatory and litigation incentives and social contexts compared to that of research conducted using data collected from developed and other emerging countries. This will help to widen our knowledge on the role of audit quality on information asymmetry across the globe.

Second, prior studies have focused on the effect of audit quality on information asymmetry between firms and outside investors. In contrast, this study focuses on whether audit quality is linked to lower information asymmetry between informed and uninformed investors. Moreover, this study examines whether political connections have no effect on the association between audit quality and information asymmetry. Thus, this study contributes to the literature by focusing on the impact of audit quality on information asymmetry and the moderating effect of political connections on the relationship between audit quality and information asymmetry using a sample of 49 leading listed local banks across the GCC.

Third, my research findings have policy implications. Specifically, the results of the study suggest that policymakers, standard-setters and regulators need to understand the potential adverse effect of political connections on the role of audit quality on information asymmetry among traders. The study also provides important insights for audit regulators to better identify and understand the benefits of audit quality and to take policy matters that influence audit quality seriously.

The remainder of the paper is organized as follows. The next section presents the institutional background. Section 3 reviews previous studies and develops the hypotheses. Section 4 presents the research design and the sample selection procedure. Section 5 discusses the descriptive statistics and the main results. Section 6 provides a brief summary and conclusion.

2. Institutional background

The GCC was founded in May 1981 by Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It aims to strengthen unity among its members and formulate similar regulations in various fields, such as the economy, finance, tourism, trade, legislation and customs, based on common objectives and similar political and cultural identities, which are rooted in Islamic beliefs.

The accounting and auditing profession in the region is regulated by Commercial Law. For example, in the Kingdom of Saudi Arabia (KSA), the setting of accounting and auditing regulations rests with the Ministry of Trade (Al-Hadi *et al.*, 2016; Qahtani, 2006). In the UAE, Federal Law No. 22 of 1995 stipulates the registration, licensing and the responsibilities of auditors. Bahrain Commercial Law No. 13 of 1980 is like other GCC states' laws in all material aspects (Qahtani, 2006) [2].

The GCC holds 45% of the world's oil reserves and has experienced rapid economic growth in recent years thanks to increasing oil and natural gas revenues (Al-Hadi *et al.*, 2016; Al-Shammari *et al.*, 2008). According to the World Bank, the region produced an aggregate GDP of above \$1.6 trillion (Al-Shammari *et al.*, 2008). The region's stock markets have also grown rapidly over the past decade, reaching an average capitalization of 44% of GDP in 2013. The market capitalization for all GCC countries increased from US\$120 billion in 2002 to US\$1,000 billion in 2006 (Al-Shammari *et al.*, 2008). The region's financial sector is dominated by banking and is also one of the largest Islamic banking markets, with approximately \$300 billion in financial assets, over one-third of the total global Islamic banking sector.

3. Literature review and hypotheses development

3.1 Literature review

3.1.1 Audit quality. Previous theoretical studies suggest that auditing is valued for its ability to provide independent assurance of the credibility of accounting information, which improves resource allocation and contracting efficiency, and the growing complexity of business transactions and accounting standards increases the auditing's potential to add value (Defond and Zhang, 2014). Several auditing studies empirically address auditing-related questions using a large number of proxies to measure audit quality. However, there is

no consensus on which measures are best. In this section, I limit my review to the literature that focused on going-concern audit opinion and audit characteristics proxied by Big *N* auditors as measures of audit quality because the extensive literature has shown that these measures have several advantages that make them attractive for capturing audit quality (Defond and Zhang, 2014) [3].

3.1.2 Audit communication. The audit opinion is currently the auditor's only direct communication with shareholders about the audit process and its outcome. Previous studies have shown that going-concern modified opinions communicate the auditor's evaluation of whether there is substantial doubt about the client's ability to continue as a going concern (e.g. Defond and Zhang, 2014). Similarly, Barros *et al.* (2013) argued that auditors are more likely to issue a going-concern opinion when companies have lower industry-adjusted returns and higher return volatility. For example, Francis and Krishnan (1999) documented a significant positive association between the level of discretionary accruals and the likelihood of receiving a qualified opinion. Similarly, Butler *et al.* (2004) found that there is a relation between modified opinions and abnormal accruals for companies that have going concerns. Using a sample of firms listed on the Australian stock exchange, (Herbohn and Ragunathan, 2008) found a negative association between actual abnormal accruals and the probability of receiving a qualified audit opinion. Further, Sengupta and Shen (2007) found that a going-concern audit opinion is higher when the quality of accruals for a firm is low. Similarly, using a sample of US firms from 2003 to 2005, Francis and Yu (2009) documented that large audit firms are more likely to issue going-concern audit reports because they have more experts better able to identify going-concern problems and issue more timely going-concern reports.

In contrast, Reichelt and Wang (2010) and Numan and Willekens (2012) found that Big 4 clients are significantly less likely to receive going-concern opinions, suggesting that Big 4 clients are in better financial condition and are therefore less likely to warrant a going-concern opinion. Similarly, Mutchler *et al.* (2010) found no significant difference in going-concern opinion rates between Big 6 and non-Big-6 auditors. Boone, Khurana and Raman (2010) also examined audit quality for Big 4 and second-tier auditors from 2003 to 2006 and found weak evidence that the Big 4 have a higher propensity to issue going-concern audit opinions for distressed companies. Further, (Tsipouridou and Spathis, 2014) provided evidence that the going-concern decision is not associated with the level of discretionary accruals in a sample of firms listed on the Athens Stock Exchange from 2005 to 2011.

3.1.3 Audit characteristics. Numerous studies have shown that large auditors, usually measured as Big *N* membership, have stronger incentives and greater competencies to provide high audit quality (DeAngelo, 1981). For example, (Watts and Zimmerman, 1983) argued that higher audit firms have a higher tendency to identify and detect and thus curb clients from using discretionary accruals. (Wang *et al.*, 2008) also argued that specialist auditors are expected to have greater competency and stronger reputation incentives to provide high audit quality. In line with this view, several studies have documented that big audit firms diminish the magnitude of earnings management (Tendeloo and Vanstraelen, 2008); (Gul, 2006). For example, (Becker *et al.*, 1998) examined the relationship between audit quality and earnings management. Using discretionary accruals as a measure of earnings management, they found that firms using non-Big-6 auditors reported higher discretionary accruals than firms using Big 6 auditors. Francis, Maydew and Sparks (1999) extended Becker *et al.* (1998) by providing empirical evidence on the relationship between audit quality and the quality of financial information. Using a large sample of NASDAQ firms from 1975 to 1994, they found that firms audited by the Big 6 have lower estimated discretionary accruals. Similarly, Chaney *et al.* (2011) also showed that financial statements are less informative without a Big 4 auditor. In contrast, Piot (2010) found no link between audit firm size and earnings management. Specifically, they found that firms using Big 4

auditors in France did not differ from those using non-Big-4 auditors with respect to earnings management and conservatism.

Several studies have also shown that firms jointly audited by two Big 4 audit firms are even less likely to use discretionary accruals than those audited by only one Big 4 audit firm. For example, Zerni et al. (2012) argued that two different audit firms may take a stronger stand against pressure from managers and report their opinions about the clients' financial reports more independently. Similarly, Francis et al. (2009) investigated whether the choice of audit firm affects the quality of earnings reporting. Using a sample of listed firms in France, they found that firms with one or two Big 4 audits are less likely to have income increasing abnormal accruals than other firms. They also reported that firms that are jointly audited by two Big 4 audit firms are even less likely to have income increasing abnormal accruals than those audited by only one Big 4 audit firm. Using a sample of listed firms in Sweden, Zerni et al. (2012) examined whether a firm's decision to appoint two audit firms to conduct a joint audit is related to audit quality. Consistent with Francis et al. (2009), they found a positive association between joint audits and audit quality. Specifically, firms with joint auditors have a higher degree of earnings conservatism than other firms. Similarly, using a sample of nonfinancial firms, Ghosh (2011) found that companies with high discretionary accruals are more likely to be audited by big audit firms.

In contrast, using listed firms in France, Marmousez (2009) reported that firms jointly audited by a Big 4 pair do not exhibit conditional conservatism, which suggests that joint audits do not increase audit quality because they may suffer from the free-rider problem. Similarly, Lobo et al., (2017) investigated the effect of auditor pair composition on joint audit quality in a sample of listed firms in France. They reported that firms audited by a Big 4 auditor pair reduce their impairment disclosure when they book impairments, which suggests a lower transparency for firms audited by a Big 4 pair.

3.1.4 Audit quality, information asymmetry and political connections. Previous studies on the link between audit quality and cost of capital have shown that the choice of auditors affects the cost of debt. For example, Li et al. (2010) investigated the association between cost of capital and industry specialist auditors. Consistent with the assumption that higher audit quality is associated with lower information risk, they found that firms audited by industry specialist auditors enjoy significantly lower cost-of-debt financing. Similarly, using a company's bid–ask spread as a proxy for information asymmetry, Almutairi et al. (2009) reported lower information asymmetry for firms audited by short-tenured industry specialist auditors. Using firms listed on the Tunisia stock market, Hakim and Omri (2010) examined the relationship between audit quality and information asymmetry and found that hiring Big 4 auditors is negatively associated with information asymmetry. These results suggest that industry specialist auditors create greater confidence in the capital market about the reporting company by providing greater assurance of the credibility of their clients' financial statements.

The current study aims to add to this literature by investigating the relationship between audit quality and information asymmetry among investors and the moderating role of political connections on this relationship, using a sample of banks listed across the GCC.

3.2 Hypothesis development
3.2.1 Auditor's opinion and information asymmetry. Numerous studies have documented the significant association between accounting accruals and the auditor's issuance of modified audit opinions (e.g. Bradshaw et al., 2001; Francis and Krishnan, 1999), indicating that low financial quality prompts auditors to issue modified audit opinions. For example, Butler et al. (2004) documented that the relationship between accounting accruals and going-concern opinion is driven by companies with large negative accruals, and these negative accruals seem to reflect the poor financial condition of going-concern opinion companies. Similarly,

Defond and Zhang (2014) have shown that auditors issue a going-concern opinion when there is material misrepresentation of a firm's financial reports. This reflects a deterioration in accounting information quality and increases the uncertainty about the precision of accounting numbers and the information risk assessment of financial statements by market participants. Further, Francis *et al.* (2009) and (Ajona *et al.*, 2008) suggested that auditors issue a going-concern opinion when a company has low financial reporting quality, which may lead to greater information asymmetry. In line with this view, Chen *et al.* (2001) found a negative market reaction to qualified audit opinion. Similarly, Abad and Sánchez-ballesta (2013) documented a higher information asymmetry for those firms with a going-concern audit report.

Given that a going-concern audit report results in more uncertainty about a company's financial reports and a higher adverse selection risk in the market and may raise concerns about the credibility of the firm's financial reports and thus introduce noise in the assessment of the financial reports, I expect that those firms with going-concern audit reports will exhibit greater information asymmetry among investors.

Based on the earlier discussion, I developed the following hypothesis:

H1. Going-concern audit opinion is positively associated with the level of information asymmetry.

3.2.2 Auditor's size and information asymmetry. Previous studies have suggested that large audit firms provide high-quality audits due to their stronger reputation incentives and greater competencies (e.g. DeAngelo, 1981). For example, Hogan (1997) argued that higher-quality auditors provide greater scrutiny of financial reports to avoid any future litigation and severe reputational damage. Consistent with this view, several studies have documented that big audit firms diminish the magnitude of earnings management (e.g. Gul, 2006; Tendeloo and Vanstraelen, 2008). For example, Francis and Wang (2008) documented that a lower level of earnings management is diminished among Big 4 auditor clients.

Several studies have also shown that firms that are jointly audited by two Big 4 audit firms are even less likely to use discretionary accruals than those audited by only one Big 4 audit firm (e.g. Francis *et al.*, 2009). Consistent with the conventional wisdom that "two heads are better than one," prior studies have argued that Big 4 pairs have more independence, experience, resources and competence to ensure the creditability of financial reports than a single Big 4 audit firm. In line with this analysis, Francis *et al.* (2009) found that appointing two Big 4 auditors to conduct a joint audit provided higher-quality audits than one Big 4 auditor. Recently, Jiang *et al.* (2019) examined whether Big *N* auditors provide higher audit quality than non-Big-*N* auditors. Using a sample of firms that switched to Big *N* auditors due to the exogenous, they documented that treatment firms' audit quality improves after switching to Big *N* auditors. Similarly, Aobdia (2019) found that Big 4 firms are able to recruit non-Big-4 partners who deliver higher audit quality than other non-Big-4 partners with a large sample of private companies. Che *et al.* (2020) also found that audit quality increases when pairs of auditor–auditees switch affiliation from non-Big-4 firms to Big 4 firms. In contrast, opponents of joint audits argue that these may reduce audit quality because of the free-rider problem and ineffective resource coordination. For example, Lobo (2017) and Piot (2010) reported less or no transparency for firms audited by a Big 4 pair, suggesting that the competence and independence of a single Big 4 auditor are sufficient to ensure high audit quality. Recently, Garcia-Blandon and Argiles-Bosch (2018) investigated the impact of the industry specialization of individual auditors on audit quality. Using a sample of Spanish listed companies for the period between 2005 and 2013, they found that the industry specialization of audit partners has no effect on audit quality.

I addressed these competing views by conducting a two-tailed test of the following null hypothesis:

H2. Hiring two Big 4 auditors to conduct a joint audit has no effect on the level of information asymmetry.

3.2.3 Audit quality, political connections and information asymmetry. Prior studies have found that politically connected companies have few budget constraints (Lin and Li, 2004). For example, Johnson and Mitton (2003) and Li *et al.* (2010) found that politically connected companies obtain more economic aid from the government when they encounter financial distress. Similarly, Yu and Pan (2008) documented that politically connected companies obtain more frequent bank loans. This suggests that politically connected firms have fewer incentives to manage earnings than nonpolitically connected firms. As a result, the value of auditing as a monitoring mechanism is less likely to be pronounced for politically connected firms. Leuz and Oberholzer-gee (2006) also argued that politically connected firms may be reluctant to appoint Big 4 auditors to improve financial reporting transparency because they already have access to cheap loans from state-owned banks. In line with this view, Fisman (2001) found that politically connected firms may manipulate their accounting numbers and appoint non-Big-4 auditors to ensure that their diversionary practices remain secret. Similarly, Piotroski *et al.* (2015) reported that politically connected firms have fewer informative financial statements because they hire low-quality auditors to hide the firm's political cronyism and corruption, as well as how insiders are extracting private benefits at the expense of outside investors. Further, Correia (2014) argued that politically connected firms experience more lenient monitoring from regulators than firms without political connections, while Chaney *et al.* (2011) found that earnings quality is lower for politically connected firms than for politically unconnected firms.

In contrast, several studies have suggested that politically connected firms that refrain from self-dealing or exploiting their connections to divert corporate resources would prefer higher-quality financial reporting to ensure that outside investors value this aspect. This would make them more likely to hire Big 4 auditors than politically unconnected firms (Dyck and Zingales, 2004; Watts and Zimmerman, 1983). Consistent with this view, Guedhami *et al.* (2014) examined the links between political connections and the choice of auditor, finding that firms with political connections are more likely to appoint Big 4 auditors. They also reported that firms with political connections in countries with a relatively poor institutional infrastructure are more likely to appoint Big 4 auditors. Similarly, Al-Hadi *et al.* (2016) documented that the beneficial effects of joint audits in terms of a lower cost of capital are greater for politically connected firms.

I addressed these competing views by conducting a two-tailed test of the following null hypothesis:

H3. Political connections have no effect on the association between audit quality and the level of information asymmetry.

4. Variable measurement, research design and sample selection

4.1 Variable measurement

4.1.1 Measurement of information asymmetry. As in prior studies (e.g. Elbadry *et al.*, 2015; Tessema, 2019), I used several proxies such as trading volume, trade value and stock return volatility for information asymmetry because they have been used extensively in the literature. I measured trading volume (*TR_VOLUME*) as the square root of the number of annual shares traded divided by the number of shares outstanding for each firm. Trade value (*TR_VALUE*) is measured as the market value of a stock traded in a given year. Volatility (*VOLATILITY*) is measured as the annual average of daily stock return volatility.

4.1.2 Proxies for audit quality. Although prior studies use a large number of proxies to measure audit quality, there is no consensus on which measures are best (Defond and Zhang, 2014). Guided by Defond and Zhang (2014) in choosing among the commonly used audit quality proxies, I employ proxies of audit communication (proxied by auditor's going-concern modified opinion) and auditor characteristics proxied by Big *N* audit firms.

4.1.2.1 Measurement of going-concern modified audit opinion. Auditors directly communicate with shareholders about the auditing process and its outcome via their audit opinion. When there is substantial doubt about the client's ability to continue as a going concern, they issue a going-concern modified audit opinion (Defond and Zhang, 2014). In line with this view, Ajona *et al.* (2008) and Francis *et al.* (2009) argued that auditors issue a going-concern opinion when a company has low financial reporting quality, which may lead to greater information asymmetry.

Following prior studies, I measured a going-concern modified audit opinion using an indicator variable that takes a value of 1 if the audit opinion includes a going concern qualification and 0 otherwise (Boone *et al.*, 2010; Tsipouridou and Spathis, 2014; Geiger *et al.*, 2019).

4.1.2.2 Measurement of auditor characteristics. Prior studies indicate that large auditors, usually measured as Big *N* auditors, are expected to have stronger incentives and greater competencies to provide high audit quality (Defond and Zhang, 2014; DeAngelo, 1981). Moreover, consistent with the conventional wisdom that "two heads are better than one," numerous studies have argued that Big 4 pairs have more independence, experience, resources and competence to ensure the creditability of financial reports than does a single Big 4 audit firm. In line with this view, Francis *et al.* (2009) found that appointing two Big 4 auditors to conduct a joint audit provided higher-quality audits than one Big 4 auditor.

Following prior studies, I measure auditor size as an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise (e.g. Lobo *et al.*, 2017) [4].

4.1.2.3 Measurement of political connections. Following previous studies (e.g. Boubakri *et al.*, 2012; Faccio, 2006), I measure a firm's political connections using an indicator variable that takes a value of 1 if at least one of the firm's largest shareholders or one of its board of directors or the CEO is a member of the royal families, former or current ministers and members of the country's cabinet in general, ambassadors or members of the parliament of the country, and 0 otherwise.

4.1.2.4 Control variables. Based on previous studies (e.g. Al-Shammari and Al-Sultan, 2010; Elbadry *et al.*, 2015; Eng and Mak, 2003), I included several control variables that are expected to influence the degree of information asymmetry. Previous studies (e.g. Choi *et al.*, 2013) indicate that firms with high institutional ownership have a high level of analyst coverage, which leads to information dissemination and lower information asymmetry. However, Choi *et al.* (2013) found that institutional investors' role in emerging markets is limited. As a result, they may have an incentive to use private information rather than contribute to information dissemination. I measure institutional ownership (*INSTI_O*) as the percentage of shares owned by institutions. I also control for board of director independence (*BORD_ID*) because prior studies indicate that board independence is negatively related to information asymmetry, as greater board independence is effective at monitoring a firm's managerial opportunism, which encourages managers to voluntarily disclose more information (e.g. Ajina *et al.*, 2013; Elbadry *et al.*, 2015). In contrast, removing insiders from the board may harm the company because outside directors lack the knowledge and

experience to steer the company appropriately (Eng and Mak, 2003). I measure board independence (*BORD_ID*) as the percentage of independent members serving on the board of directors. I control for board size (*BOARD_SIZE*) because prior studies have shown that larger board size helps to promote corporate democracy (Freeman and Reed, 1983; Freeman, 1984) and increases the board's monitoring capacities (John and Senbet, 1998). However, Yermack (1996) showed that larger boards are ineffective because communication, coordination and decision-making problems are greater. Like Yermack (1996), I measure *BOARD_SIZE* as the number of board of directors. I also control for firm size (*SIZE*) because disclosure level increases with firm size (Welker, 1995). I measure *SIZE* as the natural logarithm of the market value of equity. I control for growth opportunity (*MTB*) because firms with higher growth opportunities disclose more information. I measure *MTB* as the ratio of the firm's market value of equity to book value. Healy *et al.* (1999) reported that capital market incentives induce more profitable firms to disclose more information. I measure profitability (*ROA*) as the ratio of net income to total assets. I control for leverage (*LEV*) because prior studies have found a negative relationship between the level of leverage and information asymmetry. I measure *LEV* as the ratio of total liabilities to total assets. Following Elbadry *et al.* (2015) and Linsmeier *et al.* (2002), I control for market trading volume (*SQMKTVOL*), which is measured as the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding, and market value (*MKTVALUE*), measured as the beginning-of-year share price multiplied by the number of shares in issue. I control for firm age (*AGE*) because prior studies (e.g. Lu *et al.*, 2010) indicate that it is easier to predict future earnings, cash flows and the asset value process of firms with longer trading histories. I defined *AGE* as the time in years since the firm was established. All variables used in this study are also defined in Appendix.

4.2 Research models

I used the following model to test H1 and H2:

$$
\begin{aligned}
INFO\_ASY_{ijt} = {} & \alpha_0 + \alpha_1 ADT\_QUA_{ijt} + \alpha_2 BORD\_ID_{ijt} + \alpha_3 INSTI\_O_{ijt} + \alpha_4 BOARD\_S_{ijt} \\
& + \alpha_5 LEV_{ijt} + \alpha_6 ROA_{ijt} + \alpha_7 MTB_{ijt} + \alpha_8 SIZE_{ijt} + \alpha_9 MKT\_VOL_{ijt} \\
& + \alpha_{10} M\_VALUE_{ijt} + \alpha_{11} AGE_{ijt} + \sigma FE\_CON_j + \varepsilon_{ijt}
\end{aligned}
$$

(1)

where:

INFO_ASY is one of three proxies for information asymmetry among investors: (1) trading volume (*TR_VOLUME*) measured as the square root of the number of annual shares traded divided by the number of shares outstanding for each firm; (2) trade value (*TR_VALUE*) measured as the market value of a stock traded in a given year; and (3) volatility (*VOLATILITY*) measured as the annual average of daily stock return volatility. *ADT_QUA* is one of two proxies for audit quality: (1) going-concern modified audit opinion (GO_CON) is an indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise; and (2) auditor size (ADT_D) is an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and zero otherwise. *FE_CON_j* captures country fixed effects. "*I*" represents the bank, "*j*" represents the country and '*t*' represents the time period.

All variables are defined as before (see also Appendix).

To test whether a firm's political connections moderate the association between audit quality and the level of information asymmetry (H4), I estimate the following model:

$$INFO\_ASY_{ijt} = \alpha_0 + \alpha_1 ADT\_QUA_{ijt} + \alpha_2 POL\_CON_{ijt} + \alpha_3 ADT\_QUA_{ijt} * POL\_CON_{ijt}$$
$$+ \alpha_4 BORD\_ID_{ijt} + \alpha_5 INSTI\_O_{ijt} + \alpha_6 BOARD\_S_{ijt} + \alpha_7 LEV_{ijt} + \alpha_8 ROA_{ijt}$$
$$+ \alpha_9 MTB_{ijt} + \alpha_{10} SIZE_{ijt} + \alpha_{11} MKT\_VOL_{ijt} + \alpha_{12} M\_VALUE_{ijt}$$
$$+ \alpha_{13} AGE_{ijt} + \sigma FE\_CON_j + \varepsilon_{ijt}$$

(2)

where:

POL_CON is a dummy variable that is equal to 1 if the firm is politically connected and 0 otherwise. All other variables were defined as before (see also Appendix).

The interaction terms between proxies for audit quality and political connections (*ADT_QUA*POL_CON*) test whether a firm's political connections moderate the association between audit quality and the level of information asymmetry.

4.3 Sample selection and data sources

My sample covers the leading listed local banks across the GCC from 2012 to 2016. The corporate governance mechanisms measure and the names of audit firms were hand-collected from audited financial reports downloaded from the websites of each GCC bank and stock exchange. Joint audits were identified directly from the audit reports signed by the two engagement partners representing the different audit firms. To measure political connections, I studied the profiles of each company's board members and CEO in their annual reports, Bloomberg and other related sites. Data such as daily trading volume, trade value and other financial data were collected from Compustat Global.

The banking sector is an interesting setting in which to investigate the impact of audit quality on the level of information asymmetry among traders for the following reasons. First, the banking sector plays an important role in the development of national and regional economies. For example, Sedik and Williams (2011) estimated that banks, which dominate the financial sector in the GCC, represent over 30% of the total public equity market capitalization in the GCC. Second, banks in the region are heavily regulated compared with other firms. This makes banks a relatively homogeneous sample compared with industrial firms, in terms of both their operating activities and accounting practices. Prior studies (Lobo, 2017) suggest that focusing on relatively homogeneous industries with relatively homogeneous accounting practices facilitates control over other determinants of cross-sectional differences. Third, the banking industry operates with a higher level of information uncertainty than other firms. As a result, it is difficult to fully understand all the relevant information when discussing a bank's future prospects (Autore *et al.*, 2009; Lobo, 2017). Fourth, the development of the financial sector has been a policy priority in many GCC member countries over the past two decades.

After deleting observations with missing values, the final sample consists of 49 leading listed local banks across the GCC and 236 bank-year observations.

5. Results

5.1 Descriptive statistics

Table 1 reports summary statistics for variables used in the study. The means and medians of proxies for information asymmetry are similar. For example, the mean (median) of T_*VOLUME* and *T_VALUE* is 5.245 (4.042) and 19.446 (19.648), respectively. Similarly, the mean (median) of proxies for audit quality is similar. For example, the mean (median) of

Variable	Min	Mean	Median	Std. Dev	Max
T_VOLUME	0.069	5.245	4.042	5.737	42.330
T_VALUE	10.932	19.446	19.648	3.006	25.927
VOLATILITY	0.318	11.312	4.086	19.592	98.402
ADT_D	0.000	0.305	0.000	0.461	1.000
GO_CON	0.000	0.401	0.500	0.306	1.000
POL_CON	0.000	0.665	1.000	0.473	1.000
BORD_ID	0.000	0.350	0.400	0.274	1.286
INSTI_O	0.022	0.474	0.503	0.207	0.897
BOARD_SIZE	6.000	9.131	9.000	1.495	13.000
LEV	0.011	0.828	0.861	0.136	0.928
ROA	−0.063	0.014	0.015	0.012	0.051
MTB	0.091	0.463	0.406	0.280	1.280
SIZE	3.052	6.963	7.424	1.911	10.309
MKT_VOL	0.211	0.737	0.626	0.399	2.138
M_VALUE	12.328	701.792	364.264	904.407	5731.19
AGE	4.000	32.953	37.000	17.705	68.000

Note(s): The table reports descriptive statistics for the variables used in the regression analyses. *TR_VOLUME* is the square root of the number of annual shares traded divided by the number of shares outstanding for each firm. *TR_VALUE* is the market value of a stock traded in a given year. *VOLATILITY* is the annual average of daily stock return volatility. *ACCRUAL* is the difference between actual total accruals and the fitted values of the accruals from Jones model. GO_CON is an indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise. ADT_D is an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise. POL_CON is a dummy variable that takes a value of 1 if at least one of the firm's largest shareholders or one of its board of directors or the CEO is a member of the royal families, former or current ministers and members of the country's cabinet in general, ambassadors or members of the parliament of the country and 0 otherwise. *INSTI_O* is the percentage of shares owned by institutions. *BORD_ID* is the percentage of independent members serving on the board of directors. *BOARD_SIZE* is the number of board of directors. *SIZE* is the natural logarithm of the market value of equity. *MTB* is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. *SQMKTVOL* is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. *MKTVALUE* is the beginning of year share price multiplied by the number of shares in issue. *AGE* is the time in years since the firm was established (for variables definition, see also Appendix)

Table 1.
Descriptive statistics

GO_CON is 0.401 (0.500). The means and medians of the control variables are also generally similar. The small difference between the means and medians and the small values of the standard deviation of the variables indicate that the variables are not skewed.

Table 2 presents the Pearson correlations coefficient matrix for the variables used in the regression analyses. The preliminary results show that most of the proxies for audit quality are related to the proxies for the level of information asymmetry. For example, *GO_CON* is negatively associated with *TR_VOLUME* and *TR_VOLUME*. The preliminary results indicate that lower discretionary accrual and hiring two Big 4 auditors to conduct a joint audit are associated with lower information asymmetry among investors, while a firm's going-concern opinion is positively associated with the level of information asymmetry. Regarding the control variables, *BORD_ID* and *INSTI_O* are negatively associated with *TR_VOLUME* and *TR_VALUE*, while *BORD_SIZE* is positively related to *TR_VALUE*, indicating that greater board independence and institutional ownership may lead to higher information asymmetry, while a larger board size may lead to lower information asymmetry. The positive association between the measures of the level of information asymmetry and *MTB, SIZE* and

Table 2.
Pearson correlation

Variable		1	2	3	4	6	7	8	9
T_VOLUME	1	1.000							
T_VALUE	2	0.562***	1.000						
VOLATILITY	3	0.090	0.295***	1.000					
ADT_D	4	0.212***	0.105	−0.147*	1.000				
GO_CON	6	−0.210***	−0.054	0.079	−0.131**	1.000			
POL_CON	7	−0.220***	−0.106	−0.188***	−0.583***	0.253***	1.000		
BORD_ID	8	0.050	−0.196***	−0.045*	−0.193***	−0.117*	−0.224*	1.000	
INSTL_O	9	−0.362***	−0.301***	−0.449***	−0.204***	−0.053	−0.001	−0.239***	1.000
BORD_SIZE	10	0.028	0.068***	0.143*	0.158*	−0.099	−0.118	−0.045	−0.204***
LEV	11	0.033***	0.271	0.083	−0.064	0.013	0.049	−0.123*	−0.021
ROA	12	−0.042*	0.255	0.118*	0.013	−0.078	−0.053	−0.124	−0.056
MTB	13	0.288***	−0.235	−0.161	0.061	−0.114	−0.154	0.321***	−0.043
SIZE	14	0.315*	0.877***	0.229	0.023	−0.070	−0.090	−0.160*	−0.159*
MKT_VOL	15	0.078	−0.035***	0.078*	−0.199	0.016	0.159	0.000	−0.229***
M_VALUE	16	0.013	0.381	0.128	−0.053	−0.0146	0.026	−0.083	−0.098
AGE	17	−0.184*	0.040	0.045	0.259	−0.045	−0.163	−0.115*	0.082

Variable		10	11	12	13	14	15	16	17
BORD_SIZE	10	1.000							
LEV	11	0.134**	1.000						
ROA	12	0.113*	0.222***	1.000					
MTB	13	−0.013	−0.294***	−0.504***	1.000				
SIZE	14	0.119*	0.276***	0.294***	−0.257***	1.000			
MKT_VOL	15	−0.084	−0.086	0.227***	−0.096	−0.015	1.000		
M_VALUE	16	0.107	0.144*	0.192***	−0.191***	0.489***	0.099***	1.000	
AGE	17	0.030	0.185	0.282***	−0.508***	0.028***	0.039	0.051	1.000

Note(s): The table reports descriptive statistics for the variables used in the regression analyses. The table reports descriptive statistics for the variables used in the regression analyses. *TR_VOLUME* is the square root of the number of annual shares traded divided by the number of shares outstanding for each firm. *TR_VALUE* is the market value of a stock traded in a given year. *VOLATILITY* is the annual average of daily stock return volatility. *ACCRUAL* is the difference between actual total accruals and the fitted values of the accruals from Jones model. GO_CON is an indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise. ADT_D is an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise. POL_CON is a dummy variable that takes a value of 1 if at least one of the firm's largest shareholders or one of its board of directors or the CEO is a member of the royal families, former or current ministers and members of the country's cabinet in general, ambassadors or members of the parliament of the country and 0 otherwise. *INSTL_O* is the percentage of shares owned by institutions. *BORD_ID* is the percentage of independent members serving on the board of directors. *BOARD_SIZE* is the number of board of directors. *SIZE* is the natural logarithm of the market value of equity. *MTB* is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. *SQMKTVOL* is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. *MKTVALUE* is the beginning of year share price multiplied by the number of shares in issue. *AGE* is the time in years since the firm was established (for variables definition, see also Appendix). ***, **, and * indicate statistical significance at the 1, 5 and 10% level, respectively

LEV indicate that the level of information asymmetry is lower for lower growth opportunities, larger firms and firms with greater leverage, respectively.

5.2 Main results

5.2.2 Auditor's going-concern modified opinion and information asymmetry. Columns I, II and III of Table 3 report results for the effect of auditor's going-concern modified opinion (*GO_CON*) on the level of information asymmetry as reflected in share-trading volume, market value of shares traded and volatility of share returns, respectively. The results reported in Table 4 show that the measure of audit quality (*GO_CON*) is significantly negatively associated with the number of shares traded (*TR_VOLUME*) but insignificantly associated with *TR_VALUE* and *VOLATILITY*. Specifically, the t-statistic equals −4.34 in Column I, −0.84 in Column II and −2.92 in Column III of Table 3. The negative and significant coefficient on *GO_CON* reported in Column I indicates that issuing an auditor's going-concern modified opinion is positively associated with the level of information asymmetry as reflected in lower share-trading volume. In line with the findings reported in Ajona *et al.* (2008) and Francis *et al.* (2009), the results reported in Table 3 suggest that auditors issuing a going-concern opinion raise concerns about the credibility of the firm's financial reports and higher adverse selection risk in the market and thus introduce noise in the assessment of the financial reports, which in turn may lead to greater information asymmetry.

With regard to the control variables, the estimated coefficients on *BORD_IN, INSTI_O* and *BOARD_SIZE* are negative and significant at the 1% level, suggesting that greater board independence, institutional ownership and board size lead to lower information dissemination, which in turn may lead to greater information asymmetry. Consistent with the findings reported in Choi *et al.* (2013), the negative coefficient on *INSTI_O* indicates that institutional investors' role in emerging markets is limited. As a result, they may have an incentive to use private information rather than contribute to information dissemination. In line with Eng and Mak (2003), the negative coefficient on *BORD_IN* indicates that removing insiders from the board may harm the company because outside directors lack the knowledge and experience to steer the company appropriately. Like the results reported in Yermack (1996), the negative coefficient on *BOARD_SIZE* indicates that larger boards are ineffective at disseminating information because communication, coordination and decision-making problems are greater. The coefficients of *ROA, MTB* and *SIZE* were positive and significant, indicating that firms that are more profitable, have greater growth opportunities and are larger provide more corporate disclosure, which may lead to information asymmetry. In contrast, the negative coefficient of *LEV* indicates that firms with higher leverage reduce their corporate disclosure, which may lead to greater information asymmetry.

5.2.3 Big 4 auditors and information asymmetry. Columns I, II and III of Table 4 report the results of the effect of appointing two Big 4 auditors to conduct a joint audit (*ADT_D*) on the level of information asymmetry as reflected in share-trading volume, market value of shares traded and volatility of share returns, respectively. The results reported in Table 5 show that the measure of audit quality (*ADT_D*) is significantly associated with all the proxies of the level of information asymmetry. Specifically, the t-statistic equals 5.81 in Column I, 9.07 in Column II and −4.811 in Column III of Table 4. The positive and significant coefficient on *ADT_D* reported in Columns I and II and negative and significant coefficient reported in Column III support my third hypothesis that greater audit quality (having two Big 4 auditors conduct a joint audit) is negatively associated with the level of information asymmetry as reflected in greater share-trading volume and market value of shares traded and lower volatility of share returns, respectively. In line with the conventional wisdom that "two heads are better than one" and the findings reported in Francis *et al.* (2009), the results reported in

Table 5 show that appointing two Big 4 auditors to conduct a joint audit provided higher quality audits than those of one Big 4 auditor.

5.2.4 Audit quality, political connections and information asymmetry. Columns I, II and III of Table 5 report the results of the impact of a firm's political connections on the effect of audit quality on the level of information asymmetry as reflected in share-trading volume, market value of shares traded and volatility of share returns, respectively. The results presented in Column I, II and III for Table 5 show that the estimated coefficient for interaction terms between an auditor's going-concern modified opinion and a firm's political connections (i.e. GO_CON*POL_CON) is insignificant for all proxies of information asymmetry. The results reported in Columns I, II and III of Table 6 also show that the estimated coefficient for interaction terms between hiring two Big 4 auditors to conduct a join audit and a firm's political connections (ADT_D*POL_CON) is insignificant.

Overall, the results reported in Tables 5 and 6 indicate that a firm's political connections have no effect on the impact of audit quality on information asymmetry. These results are consistent with Al-Hadi *et al.* (2016), who documented that the beneficial effects of audit quality are no greater for politically connected firms than for similar but politically unconnected firms.

5.3 Robustness tests
In this section, I perform additional tests to examine the robustness of my results. First, to ascertain the sensitivity of the results to the proxies of information asymmetry, I employed a

Variables	Dependent variable		
	T_VOLUME	*T_VALUE*	*VOLATILITY*
GO_CON	−3.339*** (−4.34)	−0.204 (−0.84)	2.460 (0.92)
BORD_ID	−2.819*** (−8.57)	−1.411*** (−8.29)	−6.537 (−1.93)
INSTI_O	−10.959*** (−12.34)	−3.560*** (−51.40)	−44.247*** (−8.28)
BOARD_SIZE	−0.475*** (−8.81)	−0.202*** (−6.75)	0.411 (0.72)
LEV	1.681 (1.63)	0.693 (1.06)	−0.958*** (−0.38)
ROA	21.556 (1.27)	3.812 (1.05)	−38.944 (−1.75)
MTB	7.877*** (12.64)	0.224 (073)	−9.319** (−3.03)
SIZE	1.171*** (7.92)	1.327*** (30.86)	1.601 (1.18)
MKT_VOL	−2.045*** (−8.93)	−0.742*** (−8.75)	−3.097*** (−5.90)
M_VALUE	−0.001** (−3.32)	−0.000 (−1.18)	−0.002 (−0.45)
AGE	0.001 (0.28)	0.005 (0.72)	0.011 (0.51)
INTERCEPT	0.536 (0.12)	14.183*** (18.59)	26.285** (4.63)
Observations	236	236	236
R^2	41%	83%	27%

Note(s): The table reports regression coefficient estimates and (in parentheses) t-statistics for the following regression equation (2). TR_VOLUME is the square root of the number of annual shares traded divided by the number of shares outstanding for each firm. TR_VALUE is the market value of a stock traded in a given year. VOLATILITY is the annual average of daily stock return volatility. GO_CON is an indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise. INSTI_O is the percentage of shares owned by institutions. BORD_ID is the percentage of independent members serving on the board of directors. BOARD_SIZE is the number of board of directors. SIZE is the natural logarithm of the market value of equity. MTB is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. SQMKTVOL is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. MKTVALUE is the beginning of year share price multiplied by the number of shares in issue. AGE is the time in years since the firm was established (for variables definition, see also Appendix). *** and ** indicate statistical significance at the 1 and 5% level, respectively

Table 3.
Going-concern opinions and information asymmetry

COMPOSIT variable as an alternative proxy for information asymmetry. As in Elbadry *et al.* (2015), a *COMPOSIT* variable is constructed using a principal component analysis of *TR_VOLUME, TR_VALUE* and *VOLATILITY*, and I find that the first principal component of these three variables has an eigenvalue greater than 1 and explains approximately 50% of the total variation in these data. I expect that *COMPOSIT* is decreasing in asymmetric information because *COMPOSIT* is positively associated with *TR_VOLUME* and *TR_VALUE* and inversely related to *VOLATILITY*.

I estimated the following regression equations 4 and 5 to test hypotheses 1–3 and hypothesis 4, respectively.

$$
\begin{aligned}
COMPOSIT_{ijt} = {} & \alpha_0 + \alpha_1 ADT\_QUA_{ijt} + \alpha_2 BORD\_ID_{ijt} + \alpha_3 INSTI\_O_{ijt} + \alpha_4 BOARD\_S_{ijt} \\
& + \alpha_5 LEV_{ijt} + \alpha_6 ROA_{ijt} + \alpha_7 MTB_{ijt} + \alpha_8 SIZE_{ijt} + \alpha_9 MKT\_VOL_{ijt} \\
& + \alpha_{10} M\_VALUE_{ijt} + \alpha_{11} AGE_{ijt} + \sigma FE\_CON_j + \varepsilon_{ijt}
\end{aligned}
$$

$$(3)$$

where:
All variables are defined as before (see also Appendix).

		Dependent variable	
Variables	*T_VOLUME*	*T_VALUE*	*VOLATILITY*
ADT_D	3.484*** (5.81)	0.856*** (9.07)	−4.811*** (−7.88)
BORD_ID	−1.138** (−2.92)	−1.082*** (−7.49)	−8.563** (−2.82)
INSTI_O	−11.467*** (−10.21)	−3.797*** (−33.57)	−43.156*** (−8.47)
BOARD_SIZE	−0.579*** (−11.79)	−0.239*** (−10.54)	0.598 (1.15)
LEV	3.038*** (5.11)	1.067 (−1.46)	−2.974 (−1.47)
ROA	24.729** (2.57)	2.038 (0.54)	−34.412 (−1.51)
MTB	6.829*** (6.41)	−0.202 (−0.60)	−7.283* (−2.21)
SIZE	1.137*** (7.61)	1.307*** (−31.06)	1.688 (1.20)
MKT_VOL	−1.477*** (−4.42)	0.586*** (−5.44)	−3.940*** (−7.19)
M_VALUE	−0.001 (−1.89)	−0.000 (−1.26)	−3.940*** (−7.19)
AGE	−0.028 (−1.90)	−0.003 (−0.55)	0.056* (2.52)
INTERCEPT	0.536 (0.57)	13.420*** (23.02)	32.575*** (11.77)
Observations	236	236	236
R^2	44%	28%	28%

Note(s): The table reports regression coefficient estimates and (in parentheses) t-statistics for the following regression equation (2). TR_VOLUME is the square root of the number of annual shares traded divided by the number of shares outstanding for each firm. TR_VALUE is the market value of a stock traded in a given year. VOLATILITY is the annual average of daily stock return volatility. ADT_D is an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise. INSTI_O is the percentage of shares owned by institutions. BORD_ID is the percentage of independent members serving on the board of directors. BOARD_SIZE is the number of board of directors. SIZE is the natural logarithm of the market value of equity. MTB is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. SQMKTVOL is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. MKTVALUE is the beginning of year share price multiplied by the number of shares in issue. AGE is the time in years since the firm was established (for variables definition, see also Appendix). ***, ** and * indicate statistical significance at the 1, 5 and 10% level, respectively

Table 4.
Join audits and information asymmetry

$$COMPOSIT_{ijt} = \alpha_0 + \alpha_1 ADT\_QUA_{ijt} + \alpha_2 POL\_CON_{ijt} + \alpha_3 ADT\_QUA_{ijt} * POL\_CON_{ijt}$$
$$+ \alpha_4 BORD\_ID_{ijt} + \alpha_5 INSTI\_O_{ijt} + \alpha_6 BOARD\_S_{ijt} + \alpha_7 LEV_{ijt} + \alpha_8 ROA_{ijt}$$
$$+ \alpha_9 MTB_{ijt} + \alpha_{10} SIZE_{ijt} + \alpha_{11} MKT\_VOL_{ijt} + \alpha_{12} M\_VALUE_{ijt}$$
$$+ \alpha_{13} AGE_{ijt} + \sigma FE\_CON_j + \varepsilon_{ijt}$$

(4)

where:

All variables are defined as before (see also Appendix).

The results reported in Tables 7 and 8 show that my main findings are robust to an alternative proxy of information asymmetry.

6. Conclusion

Although numerous studies have documented that audit quality plays a role in the quality of financial reporting by providing greater assurance that the financial statements faithfully reflect a firm's underlying economics, most of these studies were conducted using data from

Variables	Dependent variable		
	T_VOLUME	T_VALUE	VOLATILITY
GO_CON	−4.353** (−2.56)	−0.566 (−1.87)	−3.174 (−1.47)
POL_CON	−4.786 (−1.84)	−1.385 (−1.88)	0.362 (0.08)
GO_CON*POL_CON	3.636 (1.18)	1.174 (1.30)	9.869 (1.92)
BORD_ID	−3.189*** (−10.16)	−1.478*** (−6.20)	−3.146 (−1.02)
INSTI_O	−11.143*** (−12.42)	−3.607*** (−37.05)	−43.649*** (−8.13)
BOARD_SIZE	−0.449*** (−17.64)	−0.189*** (−5.86)	0.829 (1.36)
LEV	2.377** (3.11)	0.869 (1.29)	−3.052 (−1.56)
ROA	11.064 (0.77)	1.217 (0.27)	−1.048 (−0.12)
MTB	6.737*** (8.34)	−0.681 (−0.22)	−5.774 (−1.77)
SIZE	1.018*** (5.74)	1.286*** (23.33)	1.854 (1.30)
MKT_VOL	−1.761*** (−6.37)	−0.681*** (−8.25)	−4.858*** (−11.69)
M_VALUE	−0.001** (−3.19)	−0.000 (−1.16)	−0.002 (−0.58)
AGE	−0.007 (−0.39)	0.004 (0.69)	0.098** (3.78)
INTERCEPT	10.434** (4.60)	14.923*** (18.84)	16.092** (3.63)
Observations	236	236	236
R^2	43%	84%	27%

Table 5.
Going-concern opinions, political connections and information asymmetry

Note(s): The table reports regression coefficient estimates and (in parentheses) t-statistics for the following regression equation (3). *TR_VOLUME* is the square root of the number of annual shares traded divided by the number of shares outstanding for each firm. *TR_VALUE* is the market value of a stock traded in a given year. *VOLATILITY* is the annual average of daily stock return volatility. GO_CON is an indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise. POL_CON is a dummy variable that takes a value of 1 if at least one of the firm's largest shareholders or one of its board of directors or the CEO is a member of the royal families, former or current ministers and members of the country's cabinet in general, ambassadors or members of the parliament of the country and 0 otherwise. *INSTI_O* is the percentage of shares owned by institutions. *BORD_ID* is the percentage of independent members serving on the board of directors. *BOARD_SIZE* is the number of board of directors. *SIZE* is the natural logarithm of the market value of equity. *MTB* is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. *SQMKTVOL* is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. *MKTVALUE* is the beginning of year share price multiplied by the number of shares in issue. *AGE* is the time in years since the firm was established (for variables definition, see also Appendix). *** and ** indicate statistical significance at the 1 and 5% level, respectively

Variables	Dependent variable		
	T_VOLUME	T_VALUE	VOLATILITY
ADT_D	3.533** (4.41)	0.367 (1.96)	−0.913 (−0.60)
POL_CON	0.076 (0.10)	−1.481 (−2.10)	−1.481 (−2.10)
ADT_D*POL_CON	0.006 (0.01)	1.176* (2.79)	1.176* (2.79)
BORD_ID	−1.092* (−2.24)	−1.226*** (−4.69)	−1.226*** (−4.69)
INSTI_O	−11.476*** (−11.24)	−4.017*** (−29.87)	−4.017*** (−29.87)
BOARD_SIZE	−0.579*** (−11.39)	−0.229*** (−9.36)	−0.229 (−9.36)
LEV	3.034** (4.63)	0.749 (0.96)	0.749 (0.96)
ROA	25.068* (2.48)	4.266 (1.22)	4.266 (1.22)
MTB	6.847*** (5.59)	0.077 (0.22)	0.077 (0.22)
SIZE	1.139*** (7.73)	1.323*** (32.12)	1.323*** (32.12)
MKT_VOL	−1.484*** (−4.65)	−0.512*** (−4.80)	−0.512*** (−4.80)
M_VALUE	−0.001 (−1.87)	−0.000 (−1.41)	−0.000 (−1.41)
AGE	−0.027 (−1.83)	−0.003 (−0.48)	−0.003 (−0.48)
INTERCEPT	0.372 (0.46)	14.132*** (17.34)	14.132*** (17.34)
Observations	236	236	236
R^2	44%	85%	85%

Note(s): The table reports regression coefficient estimates and (in parentheses) t-statistics for the following regression equation (3). *TR_VOLUME* is the square root of the number of annual shares traded divided by the number of shares outstanding for each firm. *TR_VALUE* is the market value of a stock traded in a given year. *VOLATILITY* is the annual average of daily stock return volatility. ADT_D is an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise. POL_CON is a dummy variable that takes a value of 1 if at least one of the firm's largest shareholders or one of its board of directors or the CEO is a member of the royal families, former or current ministers and members of the country's cabinet in general, ambassadors or members of the parliament of the country and 0 otherwise. *INSTI_O* is the percentage of shares owned by institutions. *BORD_ID* is the percentage of independent members serving on the board of directors. *BOARD_SIZE* is the number of board of directors. *SIZE* is the natural logarithm of the market value of equity. *MTB* is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. *SQMKTVOL* is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. *MKTVALUE* is the beginning of year share price multiplied by the number of shares in issue. *AGE* is the time in years since the firm was established (for variables definition, see also Appendix). ***, ** and * indicate statistical significance at the 1, 5 and 10% level, respectively

Table 6.
Join audits, political
connections and
information
asymmetry

developed markets. Moreover, prior studies on audit quality research have focused on how audit quality lowers information asymmetry between firms and outside investors. The purpose of this study was to investigate whether audit quality effects are particular to the developed market or if they are also prominent in countries such as the GCC member countries, where the culture, religion, political institutions, legal environment, financial and tax reporting requirements, audit requirements and economic characteristics are significantly different. In addition, this study focused on whether audit quality is linked to lower information asymmetry between informed and uninformed investors. Further, this study examines whether a firm's political connections moderate the link between audit quality and information asymmetry.

The analysis of the data in this study is separated into two sections: first, the effect of audit quality proxied by the issuance of going-concern opinion and audit size on the level of information asymmetry is analyzed; second, whether political connections moderate the association between audit quality and information asymmetry is analyzed.

The results of this study indicate that audit quality affects the level of information asymmetry among investors. Specifically, I found that audit quality measured by a joint audit

by two Big 4 auditors is significantly negatively associated with the level of information asymmetry, as reflected in greater share-trading volume and market value of shares traded and lower volatility of share returns. Thus, the results indicated that audit quality plays a role in the quality of financial reporting by providing greater assurance that the financial statements faithfully reflect the firm's underlying economics and flow through to the allocation of information among traders. However, issuing an auditor's going-concern modified opinion is positively associated with the level of information asymmetry as reflected in lower share-trading volume, indicating that auditors issuing a going-concern opinion raise concerns about the credibility of the firm's financial reports and higher adverse selection risk in the market. Further, I found that political connections have no effect on the association between audit quality and information asymmetry, suggesting that the beneficial effects of audit quality are no greater for politically connected firms than for similar but politically unconnected firms.

This study contributes to the literature in several ways. First, this study helps to increase our understanding of the impact of audit quality on the level of information asymmetry among traders in different economic, legal and political institutions, regulatory and litigation incentives and social contexts compared to the research conducted using data collected from developed and other emerging countries. Second, unlike traditional audit-quality studies, this study extends prior studies by examining and focusing on new research questions. Third, the research findings have policy implications. Specifically, the results of the study suggest that policymakers, standard-setters and regulators need to understand the potentially adverse

Variables	Dependent variable *COMPOSIT*	
GO_CON	−0.339 (−2.12)	
ADT_D		0.387*** (3.05)
BORD_ID	−0.573** (−4.26)	−0.391*** (−3.08)
INSTI_O	−2.861*** (−16.65)	−2.923*** (−14.93)
BOARD_SIZE	−0.057*** (−4.98)	−0.069*** (−5.46)
LEV	0.402** (3.27)	0.554** (3.46)
ROA	−0.336 (−0.17)	−0.112 (−0.13)
MTB	0.602** (4.47)	0.476* (2.35)
SIZE	0.377*** (16.31)	0.373*** (14.30)
MKT_VOL	−0.663*** (−12.67)	−0.599*** (−12.56)
M_VALUE	−0.002** (−2.83)	−0.000* (2.80)
AGE	0.001 (0.69)	−0.002 (−0.60)
INTERCEPT	0.255 (−0.91)	−0.978*** (−4.53)
Observations	236	236
R^2	59%	60%

Note(s): The table reports regression coefficient estimates and (in parentheses) t-statistics for the following regression equation (4). COMPOSIT is constructed using a principal component analysis of *TR_VOLUME, TR_VALUE* and *VOLATILITY*. GO_CON is an indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise. ADT_D is an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise. *INSTI_O* is the percentage of shares owned by institutions. *BORD_ID* is the percentage of independent members serving on the board of directors. *BOARD_SIZE* is the number of board of directors. *SIZE* is the natural logarithm of the market value of equity. *MTB* is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. *SQMKTVOL* is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. *MKTVALUE* is the beginning of year share price multiplied by the number of shares in issue. *AGE* is the time in years since the firm was established (for variables definition, see also Appendix). ***, ** and * indicate statistical significance at the 1, 5 and 10% level, respectively

Table 7.
Audit quality and information asymmetry

effect of political connections on the role of audit quality on information asymmetry among traders.

Due to data unavailability, I was not able to use bid–ask spread as a proxy for information asymmetry. Future research should gather better and more extensive data to address this issue where possible. This study also raises a number of opportunities for future research. First, while this study provided evidence on the impact of audit quality on information asymmetry, and the moderating effect of political connections on the relationship between audit quality and information asymmetry using a sample of 49 leading listed local banks across the GCC, the study could be extended to a more in-depth study that takes account of specific factors and regulatory practices of other Middle East countries. Given that this study focuses on the impact of the impact of audit quality on information asymmetry, and the moderating effect of political connections on this relationship, it would be important for future researchers to expand this study's scope and explore how the political connections of audit firms affect audit quality and auditor's independence. Second, future research could examine the direct and joint effects of corporate governance, regulation and supervision on the level of information asymmetry.

Variables	Dependent Variable COMPOSIT	
GO_CON	−0.649* (−2.31)	
ADT_D		0.140 (0.91)
POL_CON	−0.918 (−1.86)	−0.751*** (−5.26)
GO_CON*POL_CON	0.903 (1.59)	
ADT_D*POL_CON		0.601*** (3.76)
BORD_ID	−0.044* (−2.58)	0.461** (−3.45)
INSTI_O	−2.885*** (−14.43)	−3.036*** (−5.26)
BOARD_SIZE	−0.044* (−2.58)	−0.063*** (−15.94)
LEV	0.494** (4.99)	0.392* (2.15)
ROA	−1.599 (−1.03)	1.048 (0.84)
MTB	0.453* (2.53)	0.621* (2.77)
SIZE	0.353*** (12.58)	0.381*** (15.25)
MKT_VOL	−0.643*** (−10.35)	−0.561*** (−12.10)
M_VALUE	−0.000** (−2.92)	−0.000* (2.66)
AGE	0.002 (0.57)	−0.002 (−0.50)
INTERCEPT	0.112 (0.35)	−0.625** (−3.45)
Observations	236	236
R^2	60%	61%

Note(s): The table reports regression coefficient estimates and (in parentheses) t-statistics for the following regression equation (5). COMPOSIT is constructed using a principal component analysis of TR_VOLUME, TR_VALUE and VOLATILITY. GO_CON is an indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise. ADT_D is an indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise. POL_CON is a dummy variable that takes a value of 1 if at least one of the firm's largest shareholders or one of its board of directors or the CEO is a member of the royal families, former or current ministers and members of the country's cabinet in general, ambassadors or members of the parliament of the country and 0 otherwise. INSTI_O is the percentage of shares owned by institutions. BORD_ID is the percentage of independent members serving on the board of directors. BOARD_SIZE is the number of board of directors. SIZE is the natural logarithm of the market value of equity. MTB is the ratio of the firm's market value of equity to book value. ROA is the ratio of net income to total assets. LEV is the ratio of total liabilities to total assets. SQMKTVOL is the square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding. MKTVALUE is the beginning of year share price multiplied by the number of shares in issue. AGE is the time in years since the firm was established (for variables definition, see also Appendix). ***, ** and * indicate statistical significance at the 1, 5 and 10% level, respectively

Table 8. Audit quality, political connections and information asymmetry

Notes

1. Each variable is defined in section 4 (see also Appendix).

2. Please see (Qahtani, 2006) for details about the accounting and auditing regulations in the GCC.

3. Please see Defond and Zhang (2014) for details about the auditing quality measures.

4. I used dual auditors as a proxy for audit size because all banks in my sample were audited by one or two Big 4 auditors.

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Appendix

Table A1.
Variable definition

Variable	Definition	Measurement	Source
TR_VOLUME	Trading volume	The square root of the number of annual shares traded divided by the number of shares outstanding for each firm	Linsmeier et al. (2002)
TR_VALUE	Trade value	The market value of a stock traded in a given year	Elbadry et al. (2015)
VOLATILITY	Volatility	The annual average of daily stock return volatility	Elbadry et al. (2015)
GO_CON	Going-concern opinion	An indicator variable that takes a value of 1 if the audit opinion includes a going-concern qualification and 0 otherwise	Elbadry et al. (2015), Tsipouridou and Spathis (2014), Boone et al. (2010)
ADT_D	Dual auditors	An indicator variable that takes a value of 1 if a firm hired two Big 4 auditors to conduct a joint audit and 0 otherwise	Lobo et al., (2017)
BORD_ID	Board independence	The proportion of independent members serving on the board of directors	Elbadry et al. (2015)
INSTI_O	Institutional investor ownership	The percentage of shares owned by institutions	Yermack (1996)
BOARD_SIZE	Board size	The number of board of directors	Yermack (1996)
POL_CON	Political connections	A dummy variable that takes a value of 1 if at least one of the firm's largest shareholders or one of its board of directors or the CEO is a member of the royal families, former or current ministers and members of the country's cabinet in general, ambassadors or members of the parliament of the country, and 0 otherwise	Faccio (2006), Truong et al. (2020)
LEV	Leverage	Total liabilities divided by total assets	Eng and Mak (2003)
ROA	Profitability	The ratio of net income to total assets	Eng and Mak (2003)
MTB	Market-to-book ratio	Market value of equity divided by book value of equity	Eng and Mak (2003)
SIZE	Firm size	The natural logarithm of total assets	Al-Shammari and Al-Sultan (2010)
SQMKTVOL	Market volume	The square root of the number of shares traded by GCC exchange firms divided by the number of shares outstanding	Linsmeier et al. (2002)
MKTVALUE	Market value	The beginning of year share price multiplied by the number of shares in issue	Elbadry et al. (2015)
AGE	Firm age	The time in years since the firm was established	Lu et al. (2010)