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decisions and audit opinions: evidence from Egypt**

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The final, published version in Asian Review of Accounting, DOI:10.1108/ara-07-2022-0161, 2023 is available at:

<https://doi.org/10.1108/ara-07-2022-0161>

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The effect of political connections on firms' auditor choice decisions and audit opinion: Evidence from Egypt

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This is the final peer-reviewed version of the following paper: [Tantawy, S.M. and Moussa, T. (2023), "The effect of political connections on firms' auditor choice decisions and audit opinions: evidence from Egypt", *Asian Review of Accounting*], which has been published in final form at [<https://doi.org/10.1108/ARA-07-2022-0161>]. This paper may be used for non-commercial purposes in accordance with Emerald terms and conditions for self-archiving.

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The effect of political connections on firms' auditor choice decisions and audit opinions: Evidence from Egypt

Abstract

Purpose – This paper examines how different types of corporate political connections affect auditor choice decisions (and, therefore, audit quality) and audit opinions following the 2013 Egyptian uprising.

Design/methodology/approach – This paper utilizes a unique hand-collected dataset on the type of political connections of Egyptian listed companies from 2014 to 2019. Several analyses are employed to test the hypotheses, including logit regression, probit regression, and generalized linear mixed models (GLMM). We also conduct a number of additional analyses to ensure the robustness of the results, including the instrumental variables probit model and propensity score matching (PSM).

Findings – We find strong evidence that firms' choice of auditor and audit opinion is heavily influenced by their political connections. Companies with political connections through their boards of directors and major shareholders hire Big 4 audit firms to enhance their corporate legitimacy; however, government-linked companies usually retain non-Big 4 audit firms to avoid increased transparency and to conceal improper activities, including tunneling and rent-seeking. Further, the results indicate that companies with political connections through their boards of directors or major shareholders are more likely to receive favorable audit opinions, whereas government-owned businesses are less likely to receive such opinions.

Research implications – This study provides additional evidence to policymakers that binding regulations and guidelines are necessary to oversee politically connected firms and to enhance governance and investor protection.

Originality/value – This study provides the first empirical evidence on how corporate political connections influence the choice of auditors and the opinions of audit firms in Egypt. This paper also sheds light on the impact of different types of corporate political connections on the choice of auditors and audit opinions.

Keywords: Political connections, auditor choice, audit opinions, propensity score matching (PSM), emerging markets, Egypt.

1 Introduction

In recent years, prior literature has given increasing attention to corporate political connections (e.g., Guedhami et al., 2014; Preuss & Königsgruber, 2021; Xu et al., 2019). Firms that have political connections (PCs) may have a better chance of receiving debt financing (e.g., Boubakri et al., 2012; Faccio, 2006), a lower loan cost (Houston et al., 2014), access to public funds (Goldman et al., 2013), and fewer penalties and enforcement (Liu et al., 2020) than firms without PCs. Contrary to this, some studies indicate that politically connected firms (PCFs) have low earnings quality, more earnings management activities, and increased rent-seeking behavior (e.g., Chaney et al., 2011, Habib et al., 2017).

A number of recent studies have begun to investigate whether firms' PCs influence their choice of auditors and audit outcomes. One strand of the literature examines the influence of corporate PCs on auditor choice, but the evidence is ambiguous. For example, Guedhami et al. (2014) report that PCFs tend to hire high-quality auditors to boost their financial statements' integrity. In contrast, Cheng et al. (2015), Habib et al. (2017), and Harymawan (2020) find that PCs negatively affect high-quality auditor demand, suggesting that firms with PCs may hire non-Big 4 auditors as a means of protecting their political interests and concealing tunneling and rent-seeking activities.

Another strand of literature examines the effects of PCs on audit opinions with conflicting results. It has been shown that firms with PCs are more likely to receive favorable audit opinions as auditors consider PCFs to have a lower litigation risk, therefore a lower audit risk (e.g., Habib et al., 2018; Hu et al., 2017; Liu & Subramaniam, 2013). The study by Hu et al. (2017), for example, finds that politically connected CEOs are positively associated with favorable audit opinions in Chinese firms during the subsequent period, and this relationship is stronger when

the CEO is affiliated with a local government. However, firms with PCs may experience an agency problem and may issue financial misstatements, which can increase audit risk and could result in an unfavorable audit opinion (Gul, 2006).

Given these mixed results, firms' PCs and their impact on auditor selection and audit opinions still remain relatively under-researched in the auditing literature (Khelil et al., 2021). Furthermore, the majority of previous research examining corporate political ties on auditing practices has been conducted in the US and Asian settings, such as China and Indonesia (e.g., Habib et al., 2018; He et al., 2017; Hu et al., 2017; Khelil et al., 2021; Liu & Subramaniam 2013; Liu et al., 2020). This substantially limits our understanding of how PCs affect firms' auditor choice decisions and audit opinions in other countries with different institutional and socio-political settings. As a result, our study provides novel insights on the effects of PCs on firms' auditor choice decisions (and, therefore, audit quality), as well as the auditor's opinion in an emerging market, Egypt.

Furthermore, prior studies have investigated different types of PCs which are not substitutes for each other, such as political donations, lobbying, PCs of board members, or state ownership (e.g., Guedhami et al., 2014; Habib et al., 2017; Hoang et al., 2022; Hu et al., 2017; Wong & Hooy, 2018; Xu et al., 2019). In this vein, Preuss and Königgruber (2021) indicate that it is crucial to distinguish between the different types of PCs since they are likely to have different effects on audit outcomes. Nevertheless, most of the literature relies on just one type of political connection, which is clearly inadequate for explaining this complex phenomenon. A better alternative approach would be to examine corporate PCs from multiple perspectives, as this would provide a richer basis for understanding and explaining firms' auditor choices and audit outcomes, including audit opinions. We are among the first to explore the impact of different

types of PCs (i.e., PCs through major shareholders, board of directors, and state ownership) on auditor choice and audit opinion. This puts us in an advantageous position where our results provide empirical insights into how the different types of PCs might influence a given firm's decision to select a particular type of auditor, and how these types of PCs can affect the auditor's report.

Egypt provides an interesting case study due to its distinctive institutional setting. The Egyptian market has been characterized by a weak legal and governance environment, chronic corruption, and an exceptionally high level of government interference (e.g., Acemoglu et al., 2018; El-Dyasty & Elamer, 2021; Noll, 2019; Maaloul et al., 2018). Due to corruption and favouritism that benefit connected individuals and businesses, Egypt has experienced two major uprisings in recent years, one in January 2011 and another in June 2013. The study conducted by Acemoglu et al. (2018) examines a sample of Egyptian listed companies during these uprisings and finds that a firm's stock valuation was affected by the street protests if it has political ties to the government. Egyptian firms tend to maintain an ongoing relationship with the government and politicians after these major political events in order to overcome uncertainty and market barriers, secure access to critical resources, and obtain special treatment from the government (e.g., Acemoglu et al., 2018; Noll, 2019). The main causes of these major uprisings are political scandals, such as corruption, which are non-systemic and impossible to predict by the market. Therefore, examining the Egyptian context provides a unique opportunity to shed light on how PCs have affected firms and their auditors.

This study contributes in several ways to the existing literature on auditing and PCs. This study provides the first evidence of the impact of PCs on a firm's choice of auditor and audit opinions after the Egyptian uprisings of 2013. In addition, this study offers new insights into the different

types of PCs, shedding light on how the political connections of each type of firm affect the choice of auditors and their audit opinions. Our results provide additional evidence to policymakers that binding regulations and guidelines are necessary to oversee PCFs in order to enhance their governance and protect stakeholders' interests. In addition, auditors should consider the type of PCs when making an initial assessment of their client to determine how much and how thoroughly an audit should be conducted.

The remainder of this paper is organized as follows. Section 2 outlines the political and business environment in Egypt and Section 3 reviews the theoretical and empirical literature and develops hypotheses. Section 4 describes research methods, while Section 5 provides empirical results and discussion. Section 6 concludes the paper.

2 Background: political and business environment in Egypt

During the 1990s, Egypt implemented economic reforms aimed at attracting foreign investment and stimulating economic growth. These reforms included liberalizing trade, privatizing state-owned enterprises, and deregulating capital markets. As part of its efforts to attract foreign investment, Egypt has made substantial progress in promoting corporate governance and transparency among its corporations. In 2007, the Egyptian Financial Supervisory Authority (EFSA) adopted a code of ethics for auditors dedicated to independent auditors, objectivity, competence, and professional conduct. In addition, the EFSA has established a Unit for Auditor Oversight, which is responsible for better regulating and monitoring the audit profession. As part of the enforcement of Egyptian Accounting Standards (EASs), stronger penalties have been imposed, and there have been more stringent procedures for obtaining audit licenses, conducting examinations, and maintaining continuous professional development. In the same vein, the Egyptian Institute of Directors introduced the Egyptian Corporate Governance Code

in 2005 (updated version, July 2016). This set of governance principles, however, is not legally binding or a set of obligations, and as such will have little impact on the existing practices of corporate governance in Egypt. Consequently, it is intended to serve as a guide for the best practices for governance, transparency, and effective management. Moreover, in 2019, the Ministry of Investment adopted IFRS-based EASs in order to facilitate cross-border capital movements and enhance global integration.

The audit market in Egypt is characterized by the existence of a government auditor (the accountability state authority, ASA), which has the exclusive right to audit state-owned enterprises (SOEs). It is required by law that ASA perform audits alongside private audit firms if the state owns at least 25% of a company (Article of Law 144/1988). The ASA is affiliated with the highest governmental authorities and has considerable power and independence, so it may be more likely to report any material misstatements, fraud, or corruption in order to protect stakeholders (El-Dyasty, 2017).

In spite of the fact that the economy has been reforming, the manner in which the reforms have been implemented has resulted in cronyism, public corruption, and inequality. The business elite expanded rapidly during the Mubarak regime. The early 2000s witnessed a significant increase in the privatization of several sectors; the financial sector had been reformed; and trade reforms had been implemented. It is common for companies to connect with individuals associated with the ruling party in many cases (Francis et al., 2018). Companies with PCs were able to obtain the governmental approvals necessary to take advantage of these reforms. Due to corruption and favouritism that benefit connected individuals and businesses, Egypt has experienced two major uprisings in recent years, one in January 2011 and another in June 2013. In this context, Acemoglu et al. (2018) examined a sample of Egyptian listed companies during these uprisings and found that their stock valuations had been affected by these demonstrations.

These uprisings are mainly fuelled by governmental scandals, such as corruption, which are non-systemic and difficult for the market to speculate on. Despite these major political events, Egyptian firms continue to maintain ongoing relationships with the government and politicians to gain access to critical resources, address market uncertainty, and obtain special treatment from the government (e.g., Acemoglu et al., 2018; Francis et al., 2018; Noll, 2019). As a result, examining the Egyptian context offers a unique opportunity to shed further light on how firms and their auditors have been affected by PCs.

3 Literature review and hypotheses development

3.1. Political connections and auditor choice

Agency theory posits that management and shareholders face a conflict of interest which results in agency costs that can be minimised by appointing external auditors (Fama & Jensen, 1983; Jensen & Meckling, 1976). The independent auditor plays a crucial role in reducing financial reporting bias caused by managerial incentives, which reduces agency costs, enhances the reliability of accounting information, and protects shareholders. The findings of several recent studies (e.g., Andrews & Ferry, 2021; Guedhami et al., 2014) have suggested that PCs may affect a firm's decision to hire a specific type of auditor and, therefore, the quality of the audit.

According to agency and stakeholder theories, external independent auditors can be viewed as a critical governance mechanism not only for relieving information and agency problems, but also for advancing the interests of other stakeholders (see Jensen & Meckling, 1976). Effective monitoring of the Big 4 audit firms is a result of their high-quality assurance which may reduce agency costs, ensure higher levels of transparency, improve the valuation of the firm, minimize earnings management, and lower the cost of capital (e.g., Guedhami et al., 2014; He et al., 2014). Since the Big 4 audit firms adhere to international auditing standards and provide high

auditing quality, they may be the preferred choice for firms with PCs through their shareholders or top officers; the purpose of this is to reassure stakeholders that these firms' management will not abuse their power or manipulate corporate resources (e.g., Choi & Wong, 2007; Habib et al., 2019; Tessema, 2019). Consequently, selecting a high-quality audit firm can be viewed as an effort to demonstrate a firm's willingness to enhance the credibility of audited reports.

Empirically, several studies support the view that PCFs are more likely to hire Big 4 audit firms. In emerging countries, Fan and Wong (2005) find an association between Big 4 audit firms and accounting information reliability. Khan et al. (2016) and Salehi (2020) also reveal that firms with PCs are more likely to engage Big 4 audit firms to resolve agency problems. This result suggests that high-quality audit firms can reduce managerial corruption and opportunism, particularly in countries with weak investor protections. According to Guedhami et al. (2014), companies with high-level politicians among shareholders and top officers are more likely to select Big 4 audit firms in order to enhance their reputation and ensure better transparency. According to Andrews and Ferry (2021), SOE boards with more politicians tend to receive higher-quality external audits, which results in higher audit fees.

In general, corporate stakeholders exert more pressure on PCFs to combat corruption and improve transparency and accountability. PCFs, through their shareholders or top officers, may respond to uncertainty in the business environment by hiring high-quality audit firms that could assist the firm in gaining corporate legitimacy and achieving public expectations. Based on the arguments of agency theory and related empirical evidence, we argue that businesses with politically connected boards of directors and major shareholders are more likely to appoint Big 4 auditors to alleviate information and agency problems, enhance corporate legitimacy by

signalling their high-quality financial reporting, and improve their public image. Accordingly, we develop the following hypotheses:

H1a: Companies with political connections through the board of directors are more likely to appoint Big 4 audit firms

H1b: Companies with political connections through major shareholders are more likely to appoint Big 4 audit firms

On the other hand, the managerial entrenchment perspective argues that firms with political ties may prefer to appoint a non-Big 4 auditing firm to enable political quid pro quo that provides them with the resources they require in order to implement their policies and goals and extract private benefits (e.g., Ahmad et al., 2022; Habib et al., 2018; Ma et al., 2013; Preuss & Königsgruber, 2021). A possible explanation for this behavior might be that PCFs hire a lower-quality audit firm to cover their tunneling activities and rent-seeking activities (see, for example, Cheng et al., 2015). This argument is supported by the study by Habib et al. (2017), which reports that PCFs in Indonesia manipulate accounting information in order to conceal their actual performance and, as a consequence, hire low-quality auditors. Based on a global sample, Guedhami et al. (2009) find that partially privatized companies with high government ownership tend to hire non-Big 4 auditing firms that are willing to provide less disclosures in order to protect their political interests. They also indicate that this relationship is more pronounced in countries with a weaker institutional environment. In addition, Chaney et al. (2011) report that firms with politically connected CEOs tend to report lower quality earnings. In addition, Hope et al. (2020) find that the quality of financial reporting was negatively affected by PCs after a law was enacted in 2013 that prevented politicians from being appointed as directors of listed companies in China. Ahmad et al. (2022) also reveal that PCFs in Pakistan are more likely to hire non-Big 4 auditors than non-PCFs.

Another reason why low-quality auditors are appointed is that PCFs tend to reduce corporate transparency due to its high cost (i.e., litigation, and regulation). Politically connected companies prefer not to be scrutinized in front of the public in order to allow their major shareholders and their PCs to continue to enjoy in private the fruits of their power (Piotroski et al., 2015). In a similar vein, He et al. (2014) contend that companies with PCs are motivated to protect their allies from negative publicity and maintain their reputations at the expense of corporate transparency.

Other related studies suggest that PCs embedded in government ownership may weaken the effectiveness of corporate governance, including the choice of auditors. For example, Cheng et al. (2015) find that governmental shareholders are negatively correlated with the demand for audit quality, suggesting that connected Chinese firms are less motivated to hire a Top 10 auditor. This implies that firms connected to governments may send a message to investors that they are protected from interference by governments and are less likely to be subjected to scrutiny. According to Hou and Moore (2010), state-owned enterprises in China with higher levels of government ownership are less likely to face regulatory enforcement actions against fraud. This indicates that PCs protect firms from greater scrutiny and discipline by regulators, resulting in a low demand for high quality auditors. Furthermore, Guedhami et al. (2009) find that firms connected with the government through partial ownership tend to appoint small audit firms to safeguard their political interests and facilitate collusion. In the Egyptian context, many listed companies have been dominated by the government, and consequently, we assume that the demand for high-quality audit services will decrease as the proportion of government-owned companies increases. Thus, we develop the following hypothesis:

H1c: Firms with political connections through government ownership are more likely to appoint non-Big 4 audit firms

3.2. Political connections and audit opinions

Previous research indicates that a link between corporate political connectedness and audit opinions is inconclusive (see, for example, He et al., 2017). On the demand side, firms with PCs will actively seek more favorable audit opinions as a way to demonstrate sound governance and accountability to enhance their corporate legitimacy. It has been argued by Humphery-Jenner and Powell (2014) that PCs may protect firms from possible expropriation and government corruption, thus reducing the need for PCFs to obfuscate their earnings quality in countries with weak governance. According to Hu et al. (2017), politically connected CEOs can influence the likelihood that Chinese companies will receive favorable audit opinions. They also find that favorable audit opinions are positively correlated with the PCs of CEOs in non-SOEs as compared to SOEs.

On the supply side, Hu et al. (2017) argue that auditors may underestimate risk factors in PCFs on the assumption that politicians are likely to interfere and come to rescue these firms, which may lead to unqualified audit opinions. This argument is supported by Yang (2013), who argues that auditors may benefit from a firm's PCs in that they may get a better grasp of the regulatory process as well as lobby for more favorable regulatory decisions. Therefore, auditors may assess PCFs as having a lower audit risk. Furthermore, several studies (e.g., Kim & Zhang, 2016; Yu & Yu, 2011) suggest that accounting and auditing regulations may not be strictly followed in politically connected companies. Moreover, Elmes and Chen (2020) report that the clients of politically connected audit firms are less likely to restate their earnings, however, if connected audit firms work with politically connected clients, their independence is compromised.

According to Ahmad et al. (2022), PCFs in Pakistan have a lower probability of receiving a qualified audit opinion than those without political ties.

In light of the previous discussion, we argue that auditors may benefit from PCs established by the board of directors and major shareholders, thereby reducing audit risks and increasing the probability of issuing unqualified audit opinions as a result. Accordingly, we develop the following hypotheses:

H2a: Firms with political connections through the board of directors are more likely to receive unqualified audit opinion.

H2b: Firms with political connections through major shareholders are more likely to receive unqualified audit opinion.

In the case of government-owned companies, several studies indicate that state ownership creates connections with the government, which impacts the incidence of corruption, fraud, and audit risk assessments (e.g., Habib et al., 2018; Hu et al., 2017). In an analysis of a Chinese sample, Hou and Moore (2010) reveal that government ownership is related to the deterioration of internal monitoring mechanisms, which creates a favorable environment for managerial opportunism. Additionally, they find that greater government ownership reduces regulatory enforcement against fraud, indicating that PCs can be associated with immunity from increased scrutiny and discipline by regulatory agencies. Hope et al. (2020) also report that firms that have lost their PCs have produced higher quality financial reporting since the introduction of the rules inhibiting officials from serving on the boards of listed companies in China. Additionally, He et al. (2017) indicate that SOEs with PCs tend to receive favorable audit opinions following the termination of their ties with corrupt officials. Auditors may view this termination as a reduction in audit risks for SOEs with PCs.

In the Egyptian context, the Company Law (159/1981) requires the ASA to audit listed companies with at least 25% state ownership. Government-owned firms are permitted to appoint another auditor to conduct the audit alongside ASA (i.e., dual auditors). The ASA has significant power and independence as a result of its relationship with the highest governmental authorities. For example, ASA's auditors are not subject to termination or change by the company, which might encourage them to report material misstatements, fraud, or corruption so that stakeholders can be protected. A study by El-Dyasty (2021) indicates that SOEs are more likely to receive unfavorable audit opinions. According to Wang et al. (2008), government auditors are more likely to discover errors and material misstatements in SOEs. Accordingly, we argue that government-owned companies are more likely to receive unfavorable audit opinions. Thus, based on this discussion, we can propose:

H2c: Firms with political connections through government ownership are more likely to receive qualified audit opinions.

4 Research Design

4.1. Sample and data

The initial sample consists of all EGX 100 companies over the period 2014–2019. We choose the period starting from 2014 to alleviate the concern about the extreme political and economic instability during the Egyptian uprisings of 2011 and 2013. Table 1 provides a description of the sample selection process and the distribution of the firms across industries. We eliminate 132 firm-year observations related to the financial sector because they apply different accounting rules and performance models (e.g., Habib et al., 2017; He et al., 2017). Also, 42 firm-year observations with missing data have been excluded. Therefore, we have a final sample of 426 firm-year observations for our analyses. As shown in Panel B of Table 1, our sample includes companies from eight different industries, with the consumer goods industry

having the largest proportion of the sample (26.76%), followed by industrials, basic materials, and consumer services with 23.94%, 21.13%, and 16.90% of the sample, respectively.

We manually collect corporate PCs, auditor selection, and audit opinions from company annual reports and the Egyptian Stock Exchange, while firm characteristics are compiled from DataStream. To identify and classify PCFs, we follow previous studies (e.g., Faccio, 2006; Guedhami et al., 2014; Habib et al., 2017) and we first collect the names of boards of directors including CEO and chairman, firm's major shareholders' names, and the percentage of ownership from several sources such as annual reports, board of directors' reports, company websites, Zawya database, and the Egyptian Stock Exchange. Second, the names of parliament members are collected from the Egyptian Parliament's website (<http://www.parliament.gov.eg>), the names of ministers and governorates from the website of the Egyptian Government Office (<https://www.egypt.gov.eg>). Third, the names of major shareholders and board members of EGX 100 companies were verified and matched with the names of parliament, ministers, and governorates. Finally, PCs of major shareholders and board members of listed firms could be identified from their profiles on the firm's annual report including some information on their political positions.

[Insert Table 1 here]

4.2. Empirical model and variables

This study examines the effects of corporate PCs on auditor choice and audit opinion using univariate analyses, bivariate correlation analyses, and multivariate regression analyses (such as logit, probit, and GLMM regressions). Hypothesis 1 is tested by developing the following logit model:

$$\begin{aligned} \ln [P(AUDITOR_{it} = 1)/(1 - P(AUDITOR_{it} = 1))] = & \alpha_0 + \alpha_1 PoliticalConnections_{it} + \\ & \alpha_2 FSIZE_{it} + \alpha_3 LEV_{it} + \alpha_4 PROF_{it} + \alpha_5 GROWTH_{it} + \alpha_6 FAGE_{it} + \\ & \alpha_7 LOSS_{it} + \sum \delta YearDummy + \sum \gamma IndustryDummy \end{aligned} \quad (1)$$

where i and t represent industry and year, respectively. $AUDITOR_{it}$ is a dummy variable that equals 1 if firms are audited by one of the Big 4 audit firms and 0 otherwise. The main independent variable is the PCs through the board of directors (PC_BOD_{it}), PCs through major shareholders (PC_BSH_{it}) or PCs through state ownership (PC_GOV_{it}). Following several related studies (e.g., Ahmad et al., 2022; Faccio, 2006; Habib et al., 2017; He et al., 2017; Wong & Hooy, 2018), data on corporate PCs is manually extracted from annual reports, audited financial reports, company websites, and the Egyptian Stock Exchange. First, PCs through the board of directors (PC_BOD_{it}) are measured using a dummy variable equal to 1 if a member of the board is a current or former (a) member of the parliament, (b) minister, (c) officer in the Egyptian Armed Forces, or (d) closely associated with politicians or political parties, and 0 otherwise. Second, we measure PCs through major shareholders (PC_BSH_{it}) using a dummy variable equal to 1 if one of the major shareholders with 10% or more shares is a current or former (a) member of the parliament, (b) minister, (c) officer in the Egyptian Armed Forces, or (d) closely associated with politicians or political parties, and 0 otherwise (e.g., Ahmad et al., 2022; Habib & Muhammadi, 2018). Third, PC_GOV_{it} measures PCs through state ownership, using a dummy variable that is 1 if the government owns at least 20% of the firm's shares, and 0 otherwise (see, for example, Cheng et al., 2015). According to H1, our expectation is that the coefficients on PC_BOD_{it} and PC_BSH_{it} will be positive, while the coefficient on PC_GOV_{it} will be negative.

We follow prior studies (e.g., Harymawan, 2020; Wang et al., 2008) in using a set of control variables that might drive the firm's auditor choice. These include firm size ($FSIZE_{it}$), financial leverage (LEV_{it}), profitability ($PROF_{it}$), sales growth ($GROWTH_{it}$), loss ($LOSS_{it}$), and firm age ($FAGE_{it}$). In all regressions, we include dummy variables for industry and year in order to control for the fixed effects of these variables. To reduce the influence of extreme values, all continuous variables are winorised at 1% and 99%. Table 2 provides detailed definitions of all variables.

Furthermore, in order to test whether PCs affect audit opinion, we develop the following logit model (Hypothesis 2):

$$\begin{aligned} \ln [P(OPINION_{it} = 1)/(1 - P(OPINION_{it} = 1))] = & \alpha_0 + \alpha_1 PoliticalConnections_{it} + \\ & \alpha_2 FSIZE_{it} + \alpha_3 LEV_{it} + \alpha_4 PROF_{it} + \alpha_5 GROWTH_{it} + \alpha_6 FAGE_{it} + \\ & \alpha_7 LOSS_{it} + \sum \delta YearDummy + \sum \gamma IndustryDummy \end{aligned} \quad (2)$$

where in Equation (2), $OPINION_{it}$ is a dummy variable equal to 1 if the audit opinion is unqualified, and 0 otherwise. The definition for PC_BOD_{it} , PC_BSH_{it} , PC_GOV_{it} , and control variables remains the same as Equation 1. According to H2, we expect the coefficients on PC_BOD_{it} and PC_BSH_{it} to be positive, and that on PC_GOV_{it} to be negative.

[Insert Table 2 here]

5 Empirical Results and Discussion

5.1. Descriptive statistics and univariate analysis

The descriptive statistics of all variables are presented in Table 3, Panel A. Of the firms in our sample, 55.2% are audited by one of the Big 4 firms (AUDITOR), and 55.9% received more favorable audit opinions during the research period (OPINION). In addition, around 75.6% of

firms have at least one politically connected board member (PC_BOD), 20.2% have PCs through major shareholders (PC_BSH), and 45.8% have politically connected state-owned enterprises (PC_GOV). It is evidently clear that PCs through the board of directors and government ownership in firms are common in the Egyptian market. Such connections may be sought to improve the firms' competitive stance through gaining access to essential resources; they might also be sought to deal with external uncertainties, to negotiate policies with the government, or to cover firms' improper activities, such as tunneling and rent-seeking (Habib et al., 2017; Cheng et al., 2015). This result is consistent with prior studies (e.g., Abdul Wahab et al., 2017; Boubakri et al., 2008; Faccio, 2006) that suggest that PCs are more dominant in developing and emerging countries. Table 3, Panel A further shows that firm size (FSIZE) ranges from 16.96 to 24.90 with a mean of 20.95. In addition, firms in our sample, on average, are high-levered (LEV of 49 %), profitable (PROF of 5.3%), and have growth opportunities (GROWTH of -1.172).

A comparison of the mean values of all variables between firms that have and do not have PCs can be found in Table 3, Panel B. According to the univariate tests, firms with PCs through their board of directors or major shareholders are more likely to hire Big 4 auditors. In contrast, government-owned firms are more likely to hire non-Big 4 audit firms. We also find that firms with PCs through their board of directors and major shareholders (government shareholders) are more likely to receive favorable (unfavorable) opinions. These results are consistent with prior research (e.g., Guedhami et al., 2014; He et al., 2017) and lend support to Hypotheses 1 and 2.

[Insert Table 3 here]

In Table 4, we present the Pearson pairwise correlation matrix for variables that are used in our regression analyses. A significant positive (negative) association exists between PC_BOD,

PC_BSH, and (PC_GOV) and Big 4 audit firms. We also find similar results between corporate PCs and audit opinion (OPINION). This result is largely in line with our hypotheses. Furthermore, Table 4 shows lower correlation values among all independent and control variables, implying no significant multicollinearity issue exists.

[Insert Table 4 here]

5.2. Multivariate results

5.2.1. Political connections and auditor choice

Table 5 shows the regression results of the auditor choice (Big 4 versus non-Big 4 audit firms) against three independent variables of PCs (e.g., PC_BOD, PC_BSH, and PC_GOV) as well as all the control variables described in Equation (1). We present the results of logit regressions in Models 1-3, probit regressions in Models 4-6, and generalized linear mixed models (GLMMs) in Models 7-9. The results of Models 1 and 2 show positive and statistically significant coefficients for PC_BOD and PC_BSH ($t = 0.854, p < .001$ and $t = 1.323, p < .001$, respectively), which provide support for H1a and H1b. This result suggests that companies with PCs through their boards of directors and major shareholders are more likely to hire high-quality auditors. This evidence is consistent with previous research such as Khan et al. (2016) and Salehi (2020) that reveal a positive association between corporate PCs and auditor choice. It is also consistent with agency theory in that PCFs tend to hire a Big 4 audit firm to alleviate information and agency problems and enhance corporate legitimacy by signalling their high-quality financial reporting.

In addition, Model 3 of Table 5 reveals a significant negative association between PC_GOV and AUDITOR ($t = -0.569, p < .05$), suggesting that government owned businesses are less likely to hire Big 4 auditors. This result provides empirical support for H1c. This result tends to support the evidence of the related literature (e.g., Guedhami et al., 2009; Piotroski et al.,

2015), which indicates that PCFs with high government ownership tend to hire non-Big 4 auditors in order to avoid high transparency due to its cost or to conceal their tunneling and rent-seeking activities.

In terms of the control variables, the size of the firm (FSIZE) was significantly related to the choice of auditor, indicating that larger firms are more likely to engage Big 4 auditing firms. Moreover, we find that leverage (LEV) and firm age (FAGE) are negatively correlated with auditor choice, suggesting that highly leveraged and older firms are more likely to select non-Big 4 auditors. This is in line with prior studies (e.g., Guedhami et al., 2014; He et al., 2017).

In order to ensure the robustness of our results, we also ran probit regressions and GLMM regressions for auditor choice. In Models 4-6 and Models 7-9, the results are similar to those reported in Models 1-3 of Table 5 and are in support of Hypothesis 1. On the whole, these results led support to the argument that it is more likely for firms whose board of directors and major shareholders have PCs to select high-quality auditing firms while it is more likely for government-owned firms to select low-quality auditing firms.

[Insert Table 5 here]

5.2.2. Political connections and audit opinion

In Table 6, the empirical findings for H2a, H2b, and H2c are presented, where Models 1–3 represent the results of logit regressions, Models 4–6 represent probit regression results, and Models 7–9 represent GLMM regression results. Our results show that companies with PCs (i.e., board members and major shareholders) are more likely to receive favorable audit opinions than firms without PCs. Models 1 and 2 of Table 6 indicate that the coefficients of PC_BOD and PC_BSH are statistically significant and positively associated with OPINION (t

= 1.188, $p < .001$ and $t = 2.476$, $p < .001$, respectively). Firms with political ties through their board of directors and major shareholders are more likely to receive favorable audit opinions, supporting H2a and H2b. This evidence is in line with previous studies (e.g., He et al., 2017; Hu et al., 2017) that have suggested that firms that are connected have lower litigation risk than firms that are not connected, especially in countries with weak governance, such as Egypt. The auditor may therefore raise the level of acceptable errors in politically connected companies, thereby increasing the likelihood of issuing a favorable audit opinion.

In Model 3 of Table 6, we also find a negative relationship between PC_GOV and OPINION ($t = -2.251$, $p < .001$), thus supporting H2c. This is consistent with Habib et al. (2017), who find that PCFs in Indonesia tend to get less favorable audit opinions than non-PCFs. Additionally, this evidence supports the argument that a governmental agency (ASA) has more knowledge of SOE audits because they understand government operations. As a result, the ASA may be better able to identify errors and issue less favorable opinions (Wang et al., 2008). Additionally, we re-run Equation (2) using probit regression and GLMM regression to ensure that our results are robust. The results reported in Models 4–6 and Models 7–9 are in general similar to those reported in Models 1–3 of Table 6.

[Insert Table 6 here]

5.3. Robustness checks

We perform a number of checks to ensure that the main results are robust. First, to address potential simultaneity concerns, we rerun Equations (1) and (2) by including a one-year lag for the independent and control variables. In this manner, we allow time for the impact of corporate PCs to be discerned in auditor choice and audit opinion. The results in Table 7 are qualitatively similar to those in Tables 5 and 6.

Second, we use the Instrumental Variable (IV) Probit regression model to account for endogeneity problems (Rivers & Vuong, 1988). To perform IV Probit regression model, a valid instrument variable is required that should be related to the independent variable (i.e., PCs) but should not have any relation to the dependent variables (i.e., auditor choice or audit opinion) (Wintoki et al., 2012). Following prior studies (e.g., Habib et al., 2017; Guedhami et al., 2014), we include the percentage of PCFs in firms' industry, calculated by year (%PC_BOD_IND, %PC_BSH_IND, and %PC_GOV_IND) as instrument variables. Habib et al. (2017) indicate that the industry% of PCFs is more related to each individual company's PCs within the industry and is unlikely to be related to auditor choice and audit opinion.

[Insert Table 7 here]

Using the firm's PCs as the dependent variable and the instruments as the main independent variable, the results of the first stage probit regression are presented in columns (1), (3), and (5) of Tables 8 and 9. In all first-stage regressions, the estimated coefficients of the instrumental variables (%PC_BOD_IND, %PC_BSH_IND, and %PC_GOV_IND) are positive and significant at 1%, indicating our IVs have a positive relation to the endogenous variable (i.e., PCs of a firm). Tables 8 and 9 present the results of the second-stage probit models, which are consistent with the results reported in Tables 5 and 6. This evidence further supports our prediction that firms' PCs are associated with firms' choice of auditor and audit opinion. Our results further support our hypothesis that firms' PCs affect their choice of auditor and audit opinion. The regression summary statistics indicate that the Chi-square statistic computed across all regressions indicates that the models fit the data statistically well ($p < 0.01$). In addition, the significance of the Wald test of exogeneity statistic ($p < 0.01$) suggests that the instrumental variables are adequate, justifying the use of IV Probit models.

[Insert Tables 8 & 9 here]

Finally, to account for the possibility that the presence of PCs is self-selected, we use a propensity-score matching (PSM) method to match firms with PCs (treatment sample) with those without PCs (control sample) on the basis of observable characteristics of the firms (e.g., Rosenbaum & Rubin, 1983; Zhou et al., 2020). In the first stage of PSM, a probit model is employed to estimate the probability of a firm establishing a political connection (propensity score), which is estimated as a function of firm-level variables, such as firm size, financial leverage, profitability, sales growth, loss, and firm age (Harymawan, 2020; Liu et al., 2017). Furthermore, year and industry fixed effects are included to account for unobserved factors that may impact the presence of PCs. Secondly, we use the nearest neighbour matching method, in which each firm with a political connection is matched to its counterpart without a political connection with the propensity score that is closest to the value of the firm with a political connection. We then estimate the treatment effects, which are the differences in means between the treatment and control samples.

[Insert Table 10 here]

The results of our regression using samples from the treatment and control groups are presented in Table 10. Panel A shows the mean differences in firm characteristics between the treatment and control samples. The results show that there are no statistically significant differences in means for any of the covariates. This suggests that any differences between the two groups should reflect the effects of the treatment. Panel B shows the results of the propensity score matched sample. Models 1-3 present results for H1, while Models 4-6 present results for H2. As shown in Models 1-6 of Table 10, the coefficients of PC_BOD, PC_BSH, and PC_GOV remain significant after controlling for possible endogeneity and are largely the same as those shown in Tables 5 and 6. This suggests that PCs play a significant role in firms' choice of auditor and their opinion of the auditor.

6 Conclusion

This paper explores the relationship between firms' PCs, selection of auditing firms, and audit opinions in Egypt in the period following the 2013 uprisings. Using a large sample of hand-collected PCs data for Egyptian listed companies from 2014 to 2019, our study finds that a firm's choice of auditors and audit opinions differs across different types of PCs. The results suggest that firms politically connected through their board of directors and major shareholders (government shareholders) tend to appoint Big 4 auditors (non-Big 4 auditors). Our results further indicate that firms with politically connected directors and major shareholders (governmental shareholders) are more likely to receive favorable (unfavorable) opinions than their counterparts. Altogether, our evidence suggests that PCs have a significant influence on firms' choice of auditor (and, thus, audit quality) and auditor's opinion, and this influence is subject to the type of PCs. These findings lend support to the agency, resource dependence, and managerial entrenchment theories.

Our findings contribute to the compiling literature which highlight the links between firms' PCs, the selection of auditing firms, and audit opinions. These findings have significant implications for investors, practitioners, and policymakers, especially in emerging markets. Our results indicate that PCs have an important impact on the selection of auditing firms and the audit opinions. Consequently, regulators and policymakers may be able to minimize corporate malpractice by developing laws and regulations to promote the oversight of PCFs as well as improve governance mechanisms. In addition, PCs should be taken into consideration by auditors in their client screening, audit risk assessment, estimation of the degree of auditing work that need to be carried out.

This paper has some limitations, and it raises some issues for future research. First, future studies could replicate the methodology of our study on other countries which constitute different institutional and cultural contexts. Second, as the focus of this study has been firms' PCs through the board of directors, major shareholders, and government ownership, a good topic for future research is the examination of the other types of political influence, e.g., donations and financial contributions to politicians' electoral and political campaigns, contributions to governments, and the impacts of the contributions on performance. Finally, future research could employ a qualitative research method, e.g., interviews, to examine the views of those concerned regarding the effect of the relationship between firms' PCs, the selection of auditing firms, and audit opinions.

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Tables

Table 1. Sample selection and industry composition

Panel (A) Sample selection	
	Firm-year observations
EGX100 firms for the period 2014 - 2019	600
Less:	
Firm-year observations belonging to financials	(132)
Firm-year observations with insufficient data	(42)
Final sample	426

Panel (B) Industry composition		
Industry	Firm-year observations	Per cent
Oil and Gas	18	4.23
Basic Materials	90	21.13
Industrials	102	23.94
Consumer Goods	114	26.76
Health Care	12	2.82
Consumer Services	72	16.90
Telecommunications	12	2.82
Technology	6	1.41
Total	426	100

Table 2. Variable definitions

Variables	Symbols	Definitions
Dependent variables		
Auditor choice	AUDITOR	Dummy variable equals 1 if a firm is audited by Big 4 auditors, and 0 otherwise.
Audit opinion	OPINION	Dummy variable equals 1 if the audit opinion is unqualified, and 0 otherwise.
Independent variables		
Political connections through the board of directors	PC_BOD	Dummy variable equals 1 if one member of the board of directors is a current or former (a) member of the parliament, (b) minister, (c) officer in the Egyptian Armed Forces, or (d) closely associated with politicians or political party, and 0 otherwise.
Political connections through major shareholders	PC_BSH	Dummy variable equals 1 if one of the major shareholders with 10% or more shares is a current or former (a) member of the parliament, (b) minister, (c) officer in the Egyptian Armed Forces, or (d) closely associated with politicians or political party, and 0 otherwise.
Political connections through state ownership	PC_GOV	Dummy variable equals 1 if the government owns at least 20% of the firm's shares and 0 otherwise.
Control variables		
Firm size	FSIZE	Natural logarithm of total assets.
Leverage	LEV	Total debt to total assets.
Profitability	PROF	Return on assets which equals net income to the total asset.
Sales growth	GROWTH	The ratio of change in sales from year t-1 to year t divided by sales from year t-1.
Loss	LOSS	Dummy variable equals 1 if a firm's net income is negative, and 0 otherwise.
Firm age	FAGE	Natural logarithm of the number of years elapsed since listing.
Industry	Industry FE	Dummies for each of the eight main industries.
Year	Year FE	Dummies for each year from 2014 to 2019 inclusive.

Table 3. Descriptive statistics and univariate test

<i>Panel A: Descriptive statistics</i>				
Variable	Mean	SD	Min	Max
AUDITOR	0.552	0.498	0.000	1.000
OPINION	0.411	0.493	0.000	1.000
PC_BOD	0.756	0.430	0.000	1.000
PC_BSH	0.202	0.402	0.000	1.000
PC_GOV	0.458	0.499	0.000	1.000
FSIZE	20.950	1.644	16.960	24.900
LEV	0.490	0.580	0.001	7.189
GROWTH	-1.172	11.250	-208.600	0.998
LOSS	0.211	0.409	0.000	1.000
FAGE	18.730	11.480	0.000	60.000
PROF	0.053	0.175	-1.167	0.943

Panel B: Univariate test

Variables	Politically connected firms			Non-politically connected firms		
	PC_BOD	PC_BSH	PC_GOV	PC_BOD	PC_BSH	PC_GOV
AUDITOR	0.466	0.698	0.333	0.240***	0.338***	0.476***
OPINION	0.618	0.919	0.277	0.346***	0.459***	0.784***
FSIZE	21.1220	21.350	21.110	20.413***	20.848**	20.813*
LEV	0.486	0.364	0.615	0.500	0.521**	0.384***
GROWTH	-1.196	-1.001	-0.352	-1.097	-1.215	-1.864
LOSS	0.214	0.233	0.205	0.202	0.206	0.216
FAGE	2.658	2.507	3.004	2.931***	2.779***	2.485***
PROF	0.056	0.059	0.061	0.043	0.052	0.046

*Note: All variable definitions are in Table 2. ***, **, and * indicate significant mean differences t-test between politically connected and nonconnected firms at 0.01, 0.05, and 0.10, respectively.*

Table 4. Pearson's correlation matrix for all variables

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) AUDITOR	1.000										
(2) OPINION	0.436 (0.000)	1.000									
(3) PC_BOD	0.197 (0.000)	0.235 (0.000)	1.000								
(4) PC_BSH	0.293 (0.000)	0.371 (0.000)	0.272 (0.000)	1.000							
(5) PC_GOV	-0.145 (0.003)	-0.508 (0.000)	-0.224 (0.000)	-0.462 (0.000)	1.000						
(6) FSIZE	0.284 (0.000)	-0.076 (0.117)	0.041 (0.399)	0.048 (0.326)	0.236 (0.000)	1.000					
(7) LEV	-0.104 (0.032)	-0.141 (0.004)	-0.010 (0.833)	-0.109 (0.025)	0.198 (0.000)	-0.011 (0.827)	1.000				
(8) GROWTH	-0.060 (0.213)	-0.030 (0.535)	-0.004 (0.938)	0.008 (0.875)	0.067 (0.167)	-0.021 (0.658)	0.031 (0.527)	1.000			
(9) LOSS	-0.081 (0.093)	-0.054 (0.268)	0.013 (0.789)	0.026 (0.589)	-0.014 (0.776)	-0.287 (0.000)	0.302 (0.000)	-0.072 (0.137)	1.000		
(10) FAGE	-0.270 (0.000)	-0.177 (0.000)	-0.157 (0.001)	-0.146 (0.003)	0.346 (0.000)	0.040 (0.418)	0.120 (0.013)	0.051 (0.298)	0.018 (0.718)	1.000	
(11) PROF	0.123 (0.011)	0.046 (0.345)	0.034 (0.480)	0.017 (0.732)	0.042 (0.391)	0.341 (0.000)	-0.568 (0.000)	0.020 (0.676)	-0.569 (0.000)	-0.038 (0.435)	1.000

Note: All variable definitions are in Table 2.

Table 5: Regression's results of the impact of PCs on audit choice.

Variables (Model)	Dependent variable: Auditor choice (AUDITOR)								
	(1) Logit	(2) Logit	(3) Logit	(4) Probit	(5) Probit	(6) Probit	(7) GLMMs	(8) GLMMs	(9) GLMMs
PC_BOD	0.854*** (0.286)			0.523*** (0.164)			0.595** (0.295)		
PC_BSH		1.323*** (0.288)			0.813*** (0.173)			1.265*** (0.302)	
PC_GOV			-0.569** (0.250)			-0.367** (0.149)			-0.424* (0.252)
FSIZE	0.422*** (0.071)	0.418*** (0.073)	0.466*** (0.073)	0.249*** (0.043)	0.245*** (0.044)	0.276*** (0.043)	0.568*** (0.083)	0.560*** (0.084)	0.607*** (0.082)
LEV	-0.925** (0.422)	-0.705* (0.423)	-0.863** (0.430)	-0.528** (0.258)	-0.398 (0.258)	-0.486* (0.269)	-0.439 (0.391)	-0.315 (0.396)	-0.355 (0.400)
GROWTH	-0.009 (0.013)	-0.009 (0.012)	-0.006 (0.011)	-0.006 (0.004)	-0.006 (0.004)	-0.004 (0.004)	-0.006 (0.011)	-0.006 (0.011)	-0.004 (0.011)
LOSS	0.180 (0.348)	0.139 (0.359)	0.265 (0.348)	0.111 (0.203)	0.0831 (0.208)	0.176 (0.210)	0.231 (0.354)	0.217 (0.365)	0.311 (0.355)
FAGE	-0.834*** (0.172)	-0.811*** (0.172)	-0.771*** (0.177)	-0.503*** (0.0878)	-0.493*** (0.0899)	-0.467*** (0.0941)	-0.793*** (0.175)	-0.747*** (0.177)	-0.731*** (0.182)
PROF	-0.436 (1.030)	-0.195 (1.057)	-0.0925 (1.054)	-0.141 (0.694)	-0.0233 (0.709)	0.101 (0.720)	0.650 (0.978)	0.874 (1.007)	1.046 (1.003)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-6.416*** (1.342)	-6.227*** (1.378)	-6.656*** (1.368)	-3.761*** (0.801)	-3.613*** (0.844)	-3.910*** (0.818)	-10.12*** (1.711)	-10.03*** (1.752)	-10.53*** (1.713)
Pseudo R ²	0.165	0.187	0.156	0.168	0.188	0.158			
Wald chi2							73.88***	80.57***	73.46***
Log-likelihood							-230.78	-223.70	-231.47
N	426	426	426	426	426	426	426	426	426

Note: All variable definitions are in Table 2. ***, **, * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

Table 6: Regression's results of the impact of PCs on audit opinion.

Variables (Model)	Dependent variable: Auditor opinion (OPINION)								
	(1) Logit	(2) Logit	(3) Logit	(4) Probit	(5) Probit	(6) Probit	(7) GLMMs	(8) GLMMs	(9) GLMMs
PC_BOD	1.188*** (0.261)			0.716*** (0.156)			1.207*** (0.266)		
PC_BSH		2.476*** (0.424)			1.357*** (0.228)			2.445*** (0.423)	
PC_GOV			-2.251*** (0.269)			-1.364*** (0.156)			-2.225*** (0.265)
FSIZE	-0.029 (0.062)	-0.085 (0.064)	0.088 (0.068)	-0.015 (0.037)	-0.041 (0.039)	0.055 (0.039)	-0.0307 (0.0717)	-0.0472 (0.0764)	0.108 (0.0785)
LEV	-0.766** (0.303)	-0.424 (0.281)	-0.231 (0.328)	-0.468*** (0.162)	-0.294* (0.151)	-0.153 (0.159)	-0.798*** (0.294)	-0.514* (0.284)	-0.156 (0.315)
GROWTH	-0.007 (0.011)	-0.008 (0.010)	-0.002 (0.010)	-0.004 (0.005)	-0.005 (0.005)	-0.001 (0.006)	-0.00665 (0.0105)	-0.00801 (0.00986)	-0.00138 (0.00993)
LOSS	-0.366 (0.321)	-0.532 (0.340)	-0.167 (0.356)	-0.226 (0.189)	-0.288 (0.202)	-0.128 (0.221)	-0.365 (0.321)	-0.500 (0.342)	-0.172 (0.354)
FAGE	-0.425*** (0.156)	-0.420*** (0.157)	-0.0529 (0.176)	-0.259*** (0.091)	-0.232** (0.099)	-0.0409 (0.094)	-0.430*** (0.156)	-0.428*** (0.158)	-0.0377 (0.176)
PROF	-0.809 (0.922)	-0.326 (0.944)	0.557 (1.000)	-0.489 (0.577)	-0.226 (0.599)	0.296 (0.606)	-0.890 (0.893)	-0.620 (0.927)	0.716 (0.978)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	2.304* (1.243)	3.641*** (1.310)	0.636 (1.376)	1.364* (0.778)	1.923** (0.836)	0.379 (0.815)	2.394 (1.543)	3.049* (1.664)	0.0192 (1.710)
Pseudo R ²	0.135	0.191	0.239	0.136	0.187	0.241			
Wald chi2							59.49***	69.46***	102.38***
Log-likelihood							-250.58	-235.29	-220.37
N	426	426	426	426	426	426	426	426	426

Note: All variable definitions are in Table 2. ***, **, * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

Table 7: Logit regressions of lagged PCs, audit choice, and audit opinion

Variables (Model)	Audit choice (AUDITOR)			Auditor opinion (OPINION)		
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged PC_BOD	0.787** (0.314)			1.333*** (0.288)		
Lagged PC_BSH		1.328*** (0.317)			2.654*** (0.495)	
Lagged PC_GOV			-0.554** (0.276)			-2.325*** (0.297)
FSIZE	0.425*** (0.076)	0.419*** (0.079)	0.468*** (0.079)	-0.0391 (0.066)	-0.102 (0.069)	0.0816 (0.074)
LEV	-0.907** (0.457)	-0.678 (0.455)	-0.830* (0.466)	-0.800** (0.317)	-0.436 (0.293)	-0.231 (0.341)
GROWTH	-0.008 (0.012)	-0.009 (0.011)	-0.006 (0.011)	-0.006 (0.010)	-0.007 (0.009)	-0.009 (0.009)
LOSS	0.057 (0.390)	0.001 (0.402)	0.147 (0.391)	-0.336 (0.359)	-0.524 (0.380)	-0.061 (0.401)
FAGE	-0.982*** (0.196)	-0.955*** (0.197)	-0.913*** (0.203)	-0.462*** (0.171)	-0.451*** (0.172)	-0.052 (0.194)
PROF	-0.697 (1.110)	-0.434 (1.137)	-0.299 (1.128)	-0.879 (0.976)	-0.309 (0.987)	0.634 (1.045)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-6.027*** (1.471)	-5.888*** (1.511)	-6.323*** (1.503)	2.504* (1.365)	3.995*** (1.446)	0.690 (1.519)
Pseudo R ²	0.182	0.207	0.176	0.152	0.204	0.253
N	355	355	355	355	355	355

Note: All variable definitions are in Table 2. ***, **, * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

Table 8: Relation between PCs and audit choice - Instrumental Variable (IV) Probit regression

(Model)	(1)	(2)	(3)	(4)	(5)	(6)
Variables	1st stage probit Model dependent variable: PC_BOD	2nd stage Model dependent variable: AUDITOR	1st stage probit Model dependent variable: PC_BSH	2nd stage Model dependent variable: AUDITOR	1st stage probit Model dependent variable: PC_GOV	2nd stage Model dependent variable: AUDITOR
PC_BOD		1.666*** (4.080)				
%PC_BOD_IND	2.569*** (4.733)					
PC_BSH				1.269** (2.237)		
%PC_BSH_IND			1.328*** (3.730)			
PC_GOV						-0.836* (-1.765)
%PC_GOV_IND					2.911*** (5.442)	
FSIZE	0.050*** (3.868)	0.222*** (2.798)	0.0367*** (2.986)	0.315*** (5.439)	0.029** (2.134)	0.293*** (4.221)
LEV	0.021 (0.498)	-0.275 (-1.363)	-0.0969** (-2.446)	-0.279 (-1.557)	0.269*** (6.052)	-0.417* (-1.893)
GROWTH	0.001 (0.284)	-0.004 (-0.666)	0.001 (0.414)	-0.001 (-0.208)	0.001 (0.760)	-0.005 (-0.725)
LOSS	0.132** (2.186)	-0.002 (-0.009)	0.076 (1.362)	0.188 (1.009)	0.058 (0.936)	0.078 (0.383)
FAGE	-0.081*** (-2.999)	-0.285** (-2.125)	-0.0611** (-2.401)	-0.443*** (-4.471)	0.195*** (6.746)	-0.639*** (-5.566)
PROF	0.132 (0.813)	0.201 (0.384)	-0.094 (-0.612)	0.031 (0.059)	0.589*** (3.433)	-0.231 (-0.357)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.510* (-1.731)	-5.016*** (-4.032)	-0.518* (-1.905)	-4.951*** (-3.957)	-1.233*** (-4.033)	-4.570*** (-3.108)
Wald chi2	150.3***	150.3***	125.02***	125.02***	99.38***	99.38***
Log-likelihood	-442.7	-442.7	-409.69	-409.69	-467.14	-467.14
N	426	426	426	426	426	426
Wald test of exogeneity Chi (1)		5.90***		6.76***		4.30**

Note: All variable definitions are in Table 2. ***, **, * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

Table 9: Relation between PCs and audit opinion - Instrumental Variable (IV) Probit regression

(Model)	(1)	(2)	(3)	(4)	(5)	(6)
Variables	1st stage probit Model dependent variable: PC_BOD	2nd stage Model dependent variable: OPINION	1st stage probit Model dependent variable: PC_BSH	2nd stage Model dependent variable: OPINION	1st stage probit Model dependent variable: PC_GOV	2nd stage Model dependent variable: OPINION
PC_BOD		2.340*** (13.66)				
%PC_BOD_IND	2.569*** (4.733)					
PC_BSH				2.689*** (8.519)		
%PC_BSH_IND			1.328*** (3.730)			
PC_GOV						-1.000* (-1.576)
%PC_GOV_IND					2.911*** (5.442)	
FSIZE	0.050*** (3.868)	-0.108*** (-2.803)	0.0367*** (2.986)	-0.0799* (-1.804)	0.029** (2.134)	0.0592 (1.195)
LEV	0.021 (0.498)	-0.349** (-2.384)	-0.0969** (-2.446)	-0.113 (-0.632)	0.269*** (6.052)	-0.181 (-0.809)
GROWTH	0.001 (0.284)	-0.00407 (-0.764)	0.001 (0.414)	-0.00526 (-0.976)	0.001 (0.760)	-0.00101 (-0.172)
LOSS	0.132** (2.186)	-0.283* (-1.696)	0.076 (1.362)	-0.308* (-1.687)	0.058 (0.936)	-0.142 (-0.701)
FAGE	-0.081*** (-2.999)	0.00824 (0.0892)	-0.0611** (-2.401)	-0.0691 (-0.631)	0.195*** (6.746)	-0.108 (-0.659)
PROF	0.132 (0.813)	-0.490 (-1.079)	-0.094 (-0.612)	-0.0388 (-0.0775)	0.589*** (3.433)	0.184 (0.270)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.510* (-1.731)	1.059 (1.302)	-0.518* (-1.905)	1.735* (1.956)	-1.233*** (-4.033)	0.274 (0.243)
Wald chi2	340.80***	340.80***	221.54***	221.54***	48.73***	48.73***
Log-likelihood	-455.78	-455.78	-423.77	-423.77	-458.23	-458.23
N	426	426	426	426	426	426
Wald test of exogeneity Chi (1)		18.83***		5.92***		3.46*

Note: All variable definitions are in Table 2. ***, **, * represent statistical significance at 0.01, 0.05, and 0.10, respectively.

Table 10: Results of propensity score matching (PSM) analysis

Panel A: Covariate balance checks (PSM)									
Variables	PC_BOD			PC_BSH			PC_GOV		
	Mean		t-test	Mean		t-test	Mean		t-test
	Treatment sample	Control sample		Treatment sample	Control sample		Treatment sample	Control sample	
FSIZE	21.076	20.911	1.28	21.327	21.210	0.43	21.222	21.128	0.64
LEV	0.483	0.518	-0.82	0.378	0.385	-0.20	0.487	0.466	0.67
GROWTH	-1.219	-1.435	0.25	-1.055	-2.627	0.59	-0.371	-0.279	-0.58
LOSS	0.220	0.235	-0.45	0.198	0.247	-0.75	0.169	0.190	-0.54
FAGE	2.685	2.754	-1.17	2.518	2.474	0.34	2.978	2.988	-0.16
PROF	0.038	0.026	1.10	0.053	0.042	0.71	0.061	0.055	0.44

Panel B: Effect of PCs on audit choice and audit opinion: PSM method						
Variables (Model)	Audit choice (AUDITOR)			Auditor opinion (OPINION)		
	(1)	(2)	(3)	(4)	(5)	(6)
PC_BOD	0.528** (0.259)			0.873*** (0.237)		
PC_BSH		1.058*** (0.268)			1.430*** (0.275)	
PC_GOV			-0.452*** (0.168)			-1.377*** (0.175)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry and Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-6.507*** (2.091)	-5.192*** (2.063)	-4.592*** (1.230)	6.977*** (1.912)	-1.257 (1.703)	0.704 (1.236)
Pseudo R ²	0.220	0.198	0.182	0.245	0.148	0.256
N	334	324	355	334	324	355

Note: All variable definitions are in Table 2. ***, **, * represent statistical significance at 0.01, 0.05, and 0.10, respectively.