

Audit firms and industry specialization in an emerging economy

Are we witnessing changing environments or a dominant market?

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Abstract

Purpose – This study aims to investigate the implications of audit industry specialization on auditor's retention and growth within an emerging economy. Factors such as whether the firm is a Big 4, a firm with international affiliation, a local firm and the type of industry were studied to analyse the reasons behind audit firm retention and growth.

Design/methodology/approach – This research is based on a field study related to audit firms providing services to listed companies in an emerging economy. The sample includes the top 100 publicly held companies' in the Egyptian stock market during 2006-2011 for which their annual reports are analysed to determine the audit firms' retention and growth. An assessment of the continuity of the auditors and the increase in the number of audit clients were also measured.

Findings – The results confirm that industry specialization has an important effect on the auditor's retention, especially for industries where capital investment is significant such as buildings, construction, financial services, housing and real estate. Big 4 audit firms retained their clients because of their industry specialization and brand name. Evidence was found that good knowledge of accounting and auditing standards resulted in audit firms with international affiliation competing with the Big 4 for clients' retention and growth.

Originality/value – This study contributes to the existing literature, as it is among the first to provide empirical evidence on auditor retention, growth and auditor's dominance in an emerging economy such as Egypt.

Keywords Audit quality, Auditing, Audit industry specialization, Auditor retention

Paper type Research paper



1. Introduction

After the most extraordinary accounting scandals in history such as the Enron and WorldCom collapses, the issuance of the Sarbanes-Oxley Act (SOX) in the USA created a new setting to study and assess the effect of auditor industry specialization on audit quality and its related issues. Section 404 of SOX requires publicly listed companies to assess the effectiveness of their internal control systems and external auditors and provide their opinion on such assessment. To achieve such objectives, audit firms found their resources stretched to its limit to comply with Section 404 and other sections within the SOX requirements. At the same time, investors, audit committees and the Public Company

Accounting Oversight Board (PCAOB) started to critically scrutinize auditors and management activities. Recent studies showed auditors changing their organizational structures and strategies to meet governing bodies and clients' requirements and needs post the SOX environment (Rama and Read, 2006; Nagy and Cenker, 2007; Tricker, 2015; Mohamed and Habib, 2013; Beattie *et al.*, 2015; Hegazy *et al.*, 2015a). The changes in auditors' decisions were due to the following:

- the increased risks associated with auditing and the need to minimize it to an acceptable level;
- the strong desire to maintain the audit firm reputation, especially after the sudden collapse of Arthur Anderson;
- the possible threats of additional legislation or government regulations and intervention in the audit profession with their implications on the cost of the audit and the human capital investments needed to meet such legislation and requirements;
- the increased number of auditors resignations during the post-SOX time period, suggesting that audit firms facing higher level of risk, an overwhelming workload and intense scrutiny forced them to re-assess their clients' portfolios (Cenker and Nagy, 2008); and
- the new audit firms strategy to establish branding for their services as an important tool to compete in an ever changing global economy (Hegazy *et al.*, 2015b; Crowe Horwath International, 2017).

All of the above-mentioned worldwide environment conditions created a gap for a needed detailed examination of the effects of industry specialization on audit quality, resignations, earnings quality and market changes.

Moreover, the development of the global business market especially in the early 1990s motivated audit firms to restructure their activities around broad industry sectors and started marketing their expertise around industry specialization and branding. Scott and Gist (2013) indicated that understanding the client's industry enhances the auditor's professional scepticism for the recognition and valuations of transactions and events related to that industry. They believe that audit firms should differentiate themselves from other competing audit firms by specializing in certain industries to provide better audit quality than non-specialist audit firms. Industry specialization is a proxy for audit quality. A specialist knowledge of an industry and its related accounting and financial issues should increase the auditors' ability to detect earnings management and reduce intentional errors and litigation risk (Balsam *et al.*, 2003; Hegazy *et al.*, 2015b; Elder *et al.*, 2015). Auditing firms aim to provide high-quality audits and ensure their assurance practices comply with auditing standards (Arens *et al.*, 2017). Until today, the Big 4 as well as other international audit firms continue to promote their industry's expertise. For example, the KPMG website states: "*Specialization by sector is fundamental to our approach. We believe that we cannot truly add value for our clients without a thorough understanding of their industry throughout the world. This is why we invest in continuously improving our knowledge of the industries we serve* (www.kpmg.com). Other international accounting firms pushed forward for similar objectives such as Crowe Horwath International (2017), RSM and many others (see e.g. www.crowehorwath.net). The change of strategies from a more general approach of providing auditing, taxation and consulting to more specialized industry type services was due to increased competition in the market which required auditing firms to

achieve competitive advantages (Maher *et al.*, 1992; Gerakos and Syverson, 2015; Raitchel and Schwaiger, 2015).

Large auditing firms with an increased number of employees including qualified and well-experienced partners have specialized departments to provide audits to clients within the same industry. PricewaterhouseCoopers (PWC) (2010) emphasized in their marketing that “*our audit approach, at the leading edge of best practice, is tailored to suit the size and nature of your organization and draws upon our extensive industry knowledge*”. Other studies confirmed the importance of industry specialization practices as the US general Office noted that:

[...] a firm with industry expertise may exploit its specialization by developing and marketing audit-related services which are specific to clients in the industry and provide a higher level of assurance [Government Accountability Office (GAO), 2008, p. 111].

Most of the studies investigating industry specialization analysed its benefits such as the quality of the audit, audit pricing, restatements of financial statements, enhancing the financial reporting process and minimizing management aggressive accounting practices that lead to lower quality financial statements (Gramling *et al.*, 2001; Balsam *et al.*, 2003; Carcello and Nagy, 2004; Government Accountability Office (GAO), 2002, 2003; Krishnan, 2003; Casterella *et al.*, 2004; Neal and Riley 2004; Nagy and Cenker, 2007; Ettredge *et al.*, 2007; Romanus *et al.*, 2008; Cenker and Nagy, 2008; Public Company Accounting Oversight Board (PCAOB), 2011a, b; European Commission, 2011; Financial Reporting Council (FRC), 2011; Huang and Scholz, 2012; Hegazy *et al.*, 2015a, b; Elder *et al.*, 2015).

However, there remains no consensus as to how auditor industry specialization should be measured and its various implications on auditors and clients' activities. Most of the empirical studies examined industry expertise in Big 4 audit firms and whether industry expertise results in an increase or decrease in audit fees in developed economies (Palmrose, 1986; Maher *et al.*, 1992; Shu, 2000; Mayhew and Wilkins, 2003; Wang *et al.*, 2011; Elder *et al.*, 2015). The evidence concerning the effects of industry expertise for both Big 4 and non-Big 4, including local audit firms in emerging markets and developing countries, is still lacking. These markets and their respected countries are playing an important role in shaping the development of global accounting and auditing worldwide. Every international audit firm has a representative or affiliated firm(s) in every emerging market which directly affects the ranking, structure and strategies developed by these multinational firms which compete in very competitive international markets. Also, few studies examined the effect of industry specialization on auditors' retention and growth in firms' business (Mayhew and Wilkins, 2003; Nagy and Cenker, 2007; Government Accountability Office (GAO), 2008; Minutti-Meza, 2010; Wang *et al.*, 2011).

The current study used data from annual reports of the top 100 publicly held companies in the Egyptian stock markets during the period 2006-2011. *The researchers discussed a number of research questions which were translated to a number of hypotheses. The first two research questions investigate whether there is a relationship between auditor industry specialization and auditor retention and growth in the auditor business:*

- RQ1. Is there a relationship between auditor industry specialization and the auditor retention by clients' companies in an emerging market?
- RQ2. Is there any relationship between auditor industry specialization and the growth in the auditor business represented by the number of clients in an emerging market?

The remaining two research questions assess reasons of change in auditors and whether industry specialization affects the dominance of top industries:

- RQ1.* What are the reasons behind the change of auditors in publicly traded companies in an emerging market and whether auditor industry specialization influenced such change?
- RQ2.* Does auditor's industry specialization provide a mean to dominate the top industries?

The findings of the research provide evidence of the importance of industry specialization on the auditor's retention especially for industries where capital investment and debts covenants are significant such as Building and Construction, Financial Services and Housing and Real Estate. The results also showed that the auditing profession is dominated by Big 4 and the Government Auditor compared to audit firms with international affiliation and local firms. Finally, the results provide mixed evidence that there are no differences between the Big 4, the government auditor and audit firms with international affiliation in relation to the growth/decline in the number of audit clients for each type of audit firm during the period 2006-2011 within a specific industry sector or across various industry sectors.

Our research contributes to the existing literature in several ways. First, we analyse and document the importance of auditor industry specialization for auditing firms in retaining their clients, and achieving growth in their business measured by both the market and portfolio approaches. This suggests that recent shifts for greater industry specialization by publicly listed companies from a non-Big 4 to Big 4 firm in the Egyptian capital market could not only result in improved financial reporting quality but also financial and quality benefits to audit firms. We investigate the reasons behind such shift and assess whether this is mainly due to industry specialization or other reasons related to the nature and structure of an emerging auditing profession. Second, the research sheds light on the level of auditor specialization across various industries in an emerging market. In other words, we examine the competition level of audit firms in such market by analysing auditors' market share and auditor dominance. We also contribute to the literature by examining the effect of industry specialization on the growth in auditing firms' business measured by the increase in the number of clients and their portfolio within each industry sector and across different industries. To the best of our knowledge, this study is considered among the first to provide empirical evidence on auditor retention, growth and auditor's dominance in an emerging economy such as Egypt. Finally, we extend prior limited research that identified and investigated the possible reasons associated with switching auditors among various types of clients. Although research to date has primarily focused on the specialization of the engagement auditor (Balsam *et al.*, 2003; Dunn and Mayhew, 2004; Krishnan, 2003, 2005; Hegazy *et al.*, 2015a, b; Elder *et al.*, 2015), our findings demonstrate that following an auditor change, the specialization of the successor auditor is also an important factor in determining the direction the client would follow in relation to its financial reporting process after such critical decision. The above-mentioned objectives would contribute to the better understanding of the dynamics of professionalism in emerging markets and is important to the future of the global auditing profession (Wang *et al.*, 2011). The remainder of this paper is organized as follows. Section 2 reviews the literature about industry specialization concepts and their implications on audit and clients' activities and the development of the research hypotheses. Section 3 provides details for the development of the research hypothesis followed by the research methodology including the sample selection and data

collection. Section 5 discusses the empirical results and main findings. The final section presents conclusions, limitations and recommendations for future research.

2. The auditor and industry specialization concepts

There is no uniform definition for the meaning of a specialist. Porter (1985, p. 14) viewed industry specialization as a differentiation strategy whose purpose is to provide the company with a sustainable competitive advantage over a non-specialist:

In a differentiation strategy, a firm seeks to be unique along some dimensions that are widely valued by buyers. It seeks one or more attributes that many buyers in the industry perceive as important, and uniquely position itself to meet those needs. It is rewarded for its uniqueness with a premium price.

Similarly, the strategy literature looks at product differentiation to avoid unnecessary increase in products or service prices for a company to be able to achieve a competitive advantage in the market. For example, if an accounting firm can differentiate its services from other accounting firms, and if clients value such differentiation, firms can then potentially earn a fee premium for their differentiated services. As Porter (1985, p. 130) emphasized, “*a successful differentiator finds ways of creating value for buyers that yields a price premium in excess of the extra cost*”. At the same time, Neal and Riley (2004, p. 170) defined a specialist as a firm that “*differentiated itself from its competitors in terms of market share within a particular industry*”. Drawing on Porter’s (1985) definition, Solomon *et al.* (1999) defined industry specialists as auditors whose training and experience are largely concentrated in an industry. Research in industry specialization provided evidence that auditors who have knowledge in an industry possess a detailed and comprehensive understanding of their clients’ business’s characteristics and market conditions (Maletta and Wright, 1996; Owosho *et al.*, 2002; Romanus *et al.*, 2008; Hegazy *et al.*, 2015a). This will result in enhancing the auditors’ ability to uncover fraud and errors.

The research on auditors’ specialization grew enormously over the past decade, nevertheless with a lack of consistency in the methodologies applied for considering firms as industry audit specialists. The application of different approaches to measure industry specialization in firms did not help in the comparison and the evaluation of the findings regarding auditor specialization and its related benefits for a better quality of audit, switching of auditors, restatements and other issues pertaining to audit and financial reporting processes. Neal and Riley (2004, p. 170) summarized prior research studies on auditor specialization in two main approaches:

- the market share approach within industry differentiation across competing audit firms; and
- the portfolio share approach within audit firm differentiation across industries.

They defined the market share approach of an industry specialist “*as an audit firm that has differentiated itself from its competitors in terms of market share within a particular industry*”. The firm(s) with the largest market share has (have) acquired the largest knowledge base within that industry because of its significant investments in developing industry specific audit methodologies and technologies with its expected benefits containing increased economies of scale and improved audit quality.

At the same time, Neal and Riley (2004, p. 170) defined the portfolio share approach as the one that “*gives consideration to the relative distribution of audit services and related fees across the various industries for each audit firm considered individually*”. They explained that such an approach suggests observing audit firms’ distribution of audit fees (or estimated

fees) by industry as a reflection of industry-specific knowledge. In other words, the audit firms with the largest portfolio shares (presented in realizing the most revenues) reflect industries where the audit firms have significant knowledge bases reflecting significant investments by such firms in developing industry audit technologies. The subjectivity involved in applying the portfolio approach where the size of the industry affects designation of specialists represents one of the weaknesses of this approach and may not reflect specific efforts made by the audit firm to specialize in that industry. Also, every Big 4 audit firm may be considered a specialist in many of the largest industries but none identified as a specialist in the small industries.

Neal and Riley (2004, p. 175) continued their discussion of auditor specialization approaches by indicating that, in certain settings, only the market share measure of specialization appears appropriate. This is true in actions made by the audit clients (e.g. the clients' decisions to dismiss their auditors or to hire specialists) because the clients' focus is primarily within an industry:

For example, if a bank wants to hire a specialist, then it is unlikely that their decision criteria would include consideration of audit firms' portfolios of high technology clients as their focus is limited to firms auditing banks.

A second setting where the exclusive use of the market share is appropriate occurs when researchers have data observations matched on size and industry. In this setting, Neal and Riley (2004, p. 176) emphasized that *"there would be little specialization variation across matched pairs of clients if the portfolio approach was used because this approach tends to lack variation within an industry"*. They confirmed that, in most settings, it may be necessary to capture the different attributes of specialization that are measured by both the market share and portfolio share metrics: *"For example, in a study looking at audit quality (e.g. the type of opinion issued) both attributes of specialization may affect the quality of audit services provided. Auditors may perform above average quality work for clients in those industries where:*

- they have differentiated themselves from their competitors (market share); and/or
- they have devoted substantial resources to developing technologies and expertise (portfolio share)" (Neal and Riley, 2004, p. 176).

Therefore, they recommend that researchers may be best served if they can capture both attributes of auditor specialization, as *"the market and portfolio share measures do not act as substitutes"* (Neal and Riley, 2004, p. 175). These different measures of specialization instead may act as complements (i.e. an audit firm may be a specialist if it has both an average market share and portfolio share, as neither measure alone would be considered as a specialist). *In the next section, the current research follows Neal and Riley's findings and develops a number of hypotheses to answer the research questions related to the effect of both the market and portfolio share measures of industry specialization on the auditors' retention and growth.*

It is worth noting that the two terminologies firm specialization and auditor's specialization are interrelated. Specialization in audit firm requires that the firm itself has significant market share in a specific industry providing branding and reputation in such sector. This requires that the firm has the technical capabilities and financial resources to compete in various industry sectors and excel in one or more of them. At the same time, auditor's specialization requires that some personnel within the audit firm have qualifications, expertise and knowledge in understanding the characteristics of an industry. An audit firm should have an effective and efficient human resource system to be able to

recruit applicants with solid industry expertise or personnel who could understand the various characteristics and attributes for various industry sectors. Both the firm and the auditor's industry specialization would help the provision of high-quality audit for such industry sector(s). However, it is understood that an audit firm cannot have industry specialization unless its auditors have expertise in a specific industry.

Moving on to research studies investigating the implications of auditors' expertise and industry specialization on the audit quality and other related issues, several experimental studies emphasized the relationship between industry specialization in audit firms and the provision of high audit quality ([Almutairi et al., 2009](#); [Mohamed and Habib, 2013](#); [Scott and Gist, 2013](#); [Hegazy et al., 2015a](#)). In 2015, the PCAOB issued a new rule requiring disclosure of the audit partner's identity which implicitly assumes that an audit partner's experience is important for delivering high audit quality. The PCAOB suggested that audit committees use this information when selecting an audit firm and partner. Several studies investigated the association between audit firm tenure and audit quality ([Johnson et al., 2002](#); [Myers et al., 2003a, b](#); [Stanley and DeZoort, 2007](#); [Carcello and Nagy, 2004](#)). They found that audit firm tenure enhances audit quality using various audit quality proxies such as discretionary accruals, re-statements and fraudulent financial reporting. Other studies examined the relationship between audit quality and audit firm tenure, audit partner tenure, or both. Using Australian data, [Carey and Simnett \(2006\)](#) did not find any association between audit partner tenure and the sign and amount of abnormal working capital accruals. However, some studies found that audit quality is likely to decrease after audit partner turnover because the in-coming partner's pre-client experience cannot fully compensate for the loss of the outgoing partner's client-specific experience. This is especially true if the incoming partner does not possess any experience in the client industry sector ([Chi et al., 2017](#)). On the other hand, some researchers found evidence that there is a relationship between auditor expertise and the increase in audit quality and improving the accuracy of error detection ([Maletta and Wright, 1996](#); [Solomon et al., 1999](#); [Owhoso et al., 2002](#); [Richardson et al., 2002](#); [Romanus et al., 2008](#); [Hegazy et al., 2015b](#)). Also, industry specialization in audit firms was found to enhance the quality of the auditor's risk assessment and the choice of audit tests and the allocation of audit hours ([Low, 2004](#); [Taylor, 2000](#); [Elder et al., 2015](#); [Hegazy et al., 2015a](#); [Quick et al., 2018](#)). [Elder et al. \(2015\)](#) found that entities that use a specialist audit firm had higher audit quality and that entities that adopted a rotation policy were somewhat more likely to have higher audit quality. They confirmed [Stanley and DeZoort's \(2007\)](#) findings that the risk of lower quality in initial years is reduced with the use of specialist audit firms. Similarly, [Mohamed and Habib \(2013\)](#), using a survey distributed among practitioners in Egypt, assessed the reasons behind the voluntary switching of auditors, whether this switch will improve audit quality or not and the suggestion of the mandatory auditor rotation as a solution to such a problem. It was found that the extended auditor client relationship would enhance rather than deteriorate the audit quality, because of the increased experience with the client's business and practices. They indicated that the current voluntary auditor rotation in Egypt is not for bad reasons such as opinion shopping or searching for a lower fees auditor, but to improve the audit quality such as searching for a more reputable and experienced auditor. The evidence collected from the survey shows that audit firms usually assigns audit personnel based on their experience in the client's business industry, an issue that promotes the audit quality.

However, there are studies which provided evidence rejecting the positive relationship between audit industry specialization and audit quality. In a recent study, [Minutti-Meza \(2010\)](#) examined the relationship between auditor industry specialization and audit quality using a research designed to mitigate the influence of several clients' characteristics. The

results showed that no significant differences exist in the audit quality between clients of specialist and non-specialist auditors. Meza's (2010) findings relied on examining a sample of Arthur Anderson clients that switched auditors in 2002 where he found no industry specialization effects after the auditor change. However, he observed that the industry-specialization effects are simulated by randomly assigning clients to auditors and that his findings do not imply that industry knowledge is not important for auditors. He further pointed out that the used methodology may not fully parse out the effects of auditor industry expertise from client characteristics.

Moreover, [Almutairi et al.'s \(2009\)](#) study found that the market's perception of the quality of disclosure is higher and private information search opportunities are fewer for businesses that engage industry specialized auditors. They indicated that companies have incentives to lower information asymmetry and that specialized auditors and the length of an auditor relationship can potentially influence such objectives. A negative relation was found between specialization and information asymmetry when specialization is measured using market and portfolio share. These findings confirm a body of research studies ([Myers et al., 2003a, b, 2005](#); [Ghosh and Moon, 2005](#); [Dao and Pham, 2014](#); [Wiemann, 2015](#)) that specialization and longer audit tenure improve audit quality except for longer auditor-client relationships which exceed 10 years. Similarly, [Wiemann \(2015, p. 2\)](#) found that longer auditor tenure impairs auditor independence and thus lowers audit quality and that "earnings *quality is perceived as highest, when auditor tenure is 8.5 years*". Such result supports the [EU Parliament \(2014\)](#) regulator's presumption that long audit tenure compromises auditors' independence. [Dao and Pham \(2014\)](#) indicated that audit report lag (ARL) is expected to be longer when audit firm tenure is short, thus, requiring a specialized auditor to compensate for a lack of adequate knowledge about the clients in early years of engagement. These findings support earlier studies' results that ARL is shorter in firms audited by an industry specialized auditor because the industry-specific knowledge and expertise enable auditors to quickly familiarize themselves with the clients' activities ([Lee et al., 2009](#); [Al-Ghanem and Hegazy, 2010](#); [Habib and Bhuiyan, 2011](#)). Thus, auditor industry specialization mitigates the negative effect of short audit firm tenure on ARL ([Dao and Pham, 2014](#)).

Turning to the relationship between audit specialization and government regulations, [Carcello and Nagy \(2004\)](#) found that auditors with industry specialization help their clients be less involved in the Securities and Exchange Commission's enforcement actions. They determined that the association between auditors with industry knowledge and their clients is weaker for large clients than for small clients emphasizing that clients' characteristics may have implications on the effects of industry specialization on audit quality. Also, [Dunn and Mayhew \(2004\)](#) found that clients with industry specialization auditors are considered by financial analysts as providing high level of disclosure quality compared to clients with non-specialist auditors. For example, [Krishnan \(2005\)](#) investigated the relationship between industry specialization and how companies' earnings quickly reflect bad news regarding future cash flows. The results of his study confirmed that companies who engage industry specialist auditors reflect bad news more promptly than clients who engage non-specialists. Other studies that applied industry market share proxies for industry specialization have shown that clients who were audited by specialized industry audit firms have better financial reporting quality, presenting on average 0.3 to 2.0 per cent lower absolute discretionary accruals, compared to clients who were audited by non-industry specialized audit firms ([Reichelt and Wang, 2010](#); [Krishnan, 2003](#); [Balsam et al., 2003](#); [Hegazy et al., 2015a](#)). Also, [Lawrence et al. \(2010\)](#) confirmed the evidence previously found in the literature that there is a strong association between auditor size and audit quality which are attributed

to differences in client's characteristics including client size, performance, industry and growth (Kothari *et al.*, 2005; Hribar *et al.*, 2009; Lawrence *et al.*, 2010; Rubin and Thomas, 2010; Elder *et al.*, 2015; Hegazy *et al.*, 2015b).

Other research studies which studied industry specialization and financial statements concentrated either on testing the effects on operating-based accounts such as accruals (Balsam *et al.*, 2003; Krishnan, 2003; Quick *et al.*, 2018) or relied on errors seeded within operating related accounts (Solomon *et al.*, 1999; Owghoso *et al.*, 2002; Hammersley, 2006). Romanus *et al.* (2008) examined the impact of auditor industry specialization on restatements and non-restatement on a sample of firms (456 firms during the period between 1998 and 2003) and found that auditor industry specialization is negatively associated with the likelihood of accounting restatements. They found that auditor industry specialization reduces the likelihood of issuing restatements affecting core operating accounts (i.e. revenue, cost of goods sold and operating expenses) or operating accounts. Such findings confirmed existing evidence in the audit literature that industry specialization adds value in auditing practices by improving the quality of the financial reporting process, particularly related to the core operations of their clients:

Restatements in core operating accounts are likely to have a more profound effect on the perception of the firm's permanent earnings as compared with noncore accounts because the estimation of permanent earnings is a critical part of valuation and investment analyses (Romanus *et al.*, 2008, p. 390).

Other studies (Shu, 2000; Balsam *et al.*, 2003; Palmrose and Scholz, 2004; Lee *et al.*, 2004; Landsman *et al.*, 2009; Huang and Scholz, 2012; Schmidt, 2012; Wiemann, 2015) found similar results. The results by Romanus *et al.* (2008) and Lazer *et al.* (2004) illustrated that clients changing from a non-specialist to a specialist auditor increases the likelihood of restatements, whereas changing from a specialist to non-specialist auditor reduces the likelihood of restatements. They confirmed that auditor industry specialization enhances the auditors' ability to detect and minimize earnings management and unintentional accounting errors before financial statements are issued. More recently, Chi *et al.* (2017) using discretionary accruals and interest rate spreads as a proxy for audit quality and perceptions of such quality found that both pre-client and client-specific experience improve audit quality and creditors perceptions of such quality. They indicated that audit partner pre-client experience is positively associated with audit quality early in the engagement (i.e. not more than five years with the client).

3. Development of the research hypotheses

3.1 Industry specialization and the retention of audit firms

Industry specialization equips auditors with significant knowledge when dealing with their clients. One of the advantages of companies hiring Big 4 audit firms is their level of expertise in specific industries. Big 4 audit firms with increased levels of industry specialization can benefit from an increased market share, high retention of clients, growth in the portfolio of its clients in various industries, higher profits, high audit quality, reduced litigation risk and the ability to achieve high audit fees. Industry specialization in audit firms may benefit these firms when they negotiate the component of their assignments with clients' management (Gibbins *et al.*, 2010). Normally, audit firms acquire a reputation as industry specialists and experts in specific fields by investing to develop industry-specific knowledge and skills over and above their normal expertise, leaving the basic audit production process unchanged. In this case, the cost associated with industry specialization would be in the form of human capital and technology investment in industry-specific

knowledge. Audit firms would tend to acquire more audit clients with possible higher audit fees to compensate for such costs and earn a return on these investments. Industry specialization helps audit firms achieve higher production and economies of scale, becoming more efficient in its operations, and lowering costs of performing audits. Thus, the growth in auditing firm's business is expected to increase in specialized industries, measured by the absolute size of the firms' market share or portfolio share. Moreover, the dramatic changes in the audit market in recent years suggest that the timeliness of an investigation of trends in auditor concentration needs extension and more research. Large audit firms have claimed that specialization is a goal of increasing importance. Also, concerns of litigation forced auditors to minimize their risks by diversifying their clients. The benefits of industry specialization are likely to increase with the complexity of the industry and the risks facing the auditor. The above discussions give rise to the following research hypotheses:

- H1. Auditor industry specialization is more likely to result in auditor's retention by their clients.
- H2. Auditor industry specialization is more likely to result in auditors' acquiring more clients in the same industry.

3.2 Industry specialization and the growth in audit firms' clients

On the other hand, industry knowledge could be gained through the number of years an audit team has audited clients in the same industry. Such knowledge could also be enhanced by either providing training to individual auditors, or by providing consulting services, and by hiring experts from within the industry or from other audit firms. Previous empirical studies compared trends in market share over time between auditors categorized as industry leaders or specialists with a high market share and auditors with small shares. They found evidence that specialists continued to increase their shares during their test period, while auditors with smaller share experienced declines in their market share. [Fan and Wong \(2005\)](#) provided evidence that firms may enhance governance by choosing high-quality auditors, where the choice of industry specialist auditors may signal to the investors the firm's high standard of Corporate Governance. These results provide evidence that auditors with specialized industry expertise may achieve growth in their business by acquiring new clients not only in one industry but also throughout various industry sectors. This is achieved when audit firms succeed in achieving growth in an industry while continuing to develop their expertise in other industries ([Meza, 2010](#); [Wang et al., 2011](#); [Quick et al., 2018](#)). The above discussions give rise to the following research hypotheses:

- H3. Auditor industry specialization is more likely to result in auditors' acquiring more clients in various industry sectors at the same time.
- H4. Auditor industry specialization provides a mean to monopolize (dominate) the top industries.

4. Research methodology

Specialization was perceived and measured through two major approaches, the market-share approach and the portfolio approach ([Neal and Riley, 2004](#)). The indicator for the market-share will be the client retention by the auditor. To assess whether an auditor was retained during the period of investigation, the researchers examined the audited financial statements of companies during the period 2006-2011 including the balance sheets, duly

signed and stamped by the auditor. Also, the auditors' reports were examined to check whether the same auditor(s) certified the financial statements for the whole period or if there were changes to the new auditor's report. Any change or an addition of another auditor was considered as affecting the retention aspect and an analysis was undertaken to identify the reasons behind such change. Moreover, the analysis of growth sustained by each auditing firm was carried out using the portfolio approach by assessing whether an auditing firm saw a growth in its portfolio of clients not only within a specific industry but also across various industries. The proxy of audit firm growth is the calculation of the number of clients audited within each industry compared with the total number of clients in that industry over the period of investigation. The above proxy for auditing firms' growth is like the one used by [Neal and Riley \(2004\)](#) and [Romanus *et al.* \(2008\)](#).

The initial sample for the study consisted of the top 100 publicly held companies in the Egyptian stock market during the period 2006-2011. Annual reports of these publicly held companies were collected from the Egyptian Stock Market for analysis and study. The auditor's report, the financial statements and the board of directors' reports with any attached additional information provided by the management of the company were analysed to determine the names of the auditors, the type of the audit firm (whether a Big 4, firm with international affiliation or local firm), the reason(s) behind auditors' dismissal or resignations which was (were) included in the board of directors' reports. The researchers followed the division of the type of industries determined by the Egyptian Stock market in the analysis of the top 100 listed companies. The researchers made personal contact with the appropriate public relation representatives of the companies whenever missing information from the collected companies' reports and clarifications concerning the nature and size of the audit firm appointed by the client company, was needed. They also scanned the Egyptian Association for Accountants and Auditors magazine for the past ten years to identify any news, articles or comments concerning auditors' changes and the reasons behind such decisions. The current research excluded industries that had ten or fewer listed companies for calculating the audit firm's market share. After removing companies with missing data (primarily the auditor's report and the financial statements), the final sample included 109 publicly listed companies. The number of companies exceeded the Egyptian Stock Market listing of the top 100 because of the movement occurring during the period of study (2006-2011) with new companies being listed and others delisted. Such matter affected the total number of companies investigated throughout the period of study.

[Table I](#) shows that the top five industries in our sample are building, material and construction (20.2 per cent), financial services and banks (19.3 per cent), housing and real estate (12.8 per cent), food and beverages (8.3 per cent) and textiles and clothing (6.4 per cent). The remaining industries contain the rest of the sample. We used the auditors' reports of the companies to determine the period of retention of the auditors and the board of

Table I.
Top 5 industries in
the study period

Industry	No. of companies	(%)
Building and material and construction	22	20.2
Financial services and banks	21	19.3
Food and beverages	9	8.3
Housing and real estate	14	12.8
Textiles and clothing	7	6.4
Others	36	33
	109	100

directors' reports and the accompanying additional information to find the reasons behind the change of auditors and the type of the new auditor(s). We also scanned the name of the auditor(s) providing audit services to publicly held companies differentiating between the government auditor (the Central Audit Authority [CAO]), Big 4 audit firms, local audit firms with international affiliation and other local audit firms.

5. Results and discussion

Table II illustrates that the market share for each of the auditing firms is distributed as follows: 41.5 per cent for the Big 4 audit firms, 22 per cent for the CAO, 20.3 per cent for audit firms with international affiliation and 16.2 per cent for local firms. The Big 4 and the CAO, both having adequate resources to hire qualified auditors and strong information systems, dominated the provision of audit services to most industries with 64 per cent of the companies in the sample including the top five: Buildings and Construction, Financial Services and Banks, Food and Beverages, Housing and Real Estate and Textiles and Clothing. In the buildings and construction sector, the Big 4 and CAO audited 15 of the 22 listed companies in the top 100 firms in the Egyptian Stock market. In the financial services and banks, the Big 4 and audit firms with international affiliation exclusively audited most listed companies in this sector confirming the industry specialization possessed by such audit firms in this sector. Moreover, the complexity and continuous development in the banking and financial sector throughout the world including the changes made in banking laws and the Basel I and II requirements made the provision of the audit services in this highly specialized industry only performed by a Big 4 or other audit firms with international affiliation. Also, as indicated by [Quick *et al.* \(2018\)](#), businesses such as buildings and construction and Housing and Real estate which rely on significant amounts of debts and

Industry	No. of companies	Central audit authority	Big 4	Firms with international affiliation	Local firms
Building and material and construction	22	5	10	4	3
Chemicals	6	5	1	1	0
Communication	3	1	3	0	0
Electrical equipment and engineering	4	0	1	1	2
Entertainment (TOURISM)	3	0	2	1	0
Financial services and banks	21	0	16	4	1
Food and beverages	9	3	1	1	4
Pharmaceuticals	2	0	0	0	2
Holding companies	3	0	6	0	0
Housing and real estate	14	4	5	6	2
Information technology (IT)	1	0	1	0	0
Media	1	1	0	1	0
Mills and storage	5	3	0	0	2
Mining and gas	2	2	0	0	0
Textiles and clothing	7	1	3	4	4
Utilities	6	2	2	2	0
Total	109	27	51	25	20
		22%	41.5%	20.3%	16.2%

Table II.
Total number of
companies audited
by type of firm for
every industry

Note: #Please note that the total number of each audit firm is more than 109 because some listed companies are audited by more than one auditor

equities, have a higher tendency to choose a Big 4 audit firm. Also, the CAO only audited other non-listed large Public-Sector banks, namely, Al Ahly, Misr and Cairo Banks as well as the only bank specialized in export development in Egypt (i.e. The Egyptian Export Development Bank), confirming the need for industry specialized audit firms for such industry sector. Turning to the food and beverages industry, we can see a more scattered division among audit firms for the audit of listed companies in this sector. While the CAO and the local firms share an almost equal share of auditing listed companies (around 6 in total), only two companies are audited by the Big 4 and audit firms with international affiliation.

The reasons behind such differences in the provision of audit services across these types of audit firms is due to the following:

- Most of the food and beverages companies have a major government ownership where the CAO is the auditor by law.
- The management of these listed government companies do not prefer to acquire high-quality audit to have more flexibility in the distribution of dividends to the board of directors and employees.
- Auditors are often hired as tax advisors and are more concerned with tax examination rather than ensuring that a reputable audit firm is engaged (Samaha and Hegazy, 2010; Mohamed and Habib, 2013).
- Most of these companies acquire their audit services through tenders resulting in selecting the audit firms with the lowest audit fees without any consideration for the reputation of the audit firms and the quality of services they provide.

For Housing and Real estate and because of the large capital investment associated in this industry and in some circumstances significant debt covenants, the CAO, the Big 4 and audit firms with international affiliation audit more than 80 per cent of the listed companies in this industry sector. The complexity and application of special accounting standards related to revenue recognition for these companies resulted in the Big 4 and other firms with international affiliation undertaking the majority audit of these companies (Quick *et al.*, 2018). Additionally, within Textile and Clothing, we can see similar results to Food and Beverage with most of these companies making annual and retained losses or small profitability figures affecting the ability of these companies' management to acquire a Big 4 or audit firms with international affiliation because of their high audit fees.

Table III provides details about the number of companies audited by each individual audit firm whether by the CAO, a Big 4, audit firms with international affiliation and local firms. Table III also shows that KPMG is dominating the Egyptian market for listed companies with 35 audit clients representing 32.1 per cent of the whole market. The CAO comes in second with 27 clients representing 24.7 per cent. The other three Big 4 audit firms only audit 16 clients representing 14.6 per cent. Mazars and RSM are the leaders in auditors with international affiliation with 18 clients representing 16.5 per cent of the total number of clients within these industries. KPMG has a huge number of partners and staff of 40 and over 1200, respectively, in Egypt which is more than 3 times any of the other Big 4 or firms with international affiliation. This explains their high percentage of auditing listed clients in comparison to other audit firms. Moreover, the CAO can be appointed by any company where the percentage of ownership of the government or any of its entities is more than 20 per cent. This resulted in many listed companies lawfully having the CAO as their only or joint auditor. However, the CAO has specialized divisions within its structure of audit activities based on industry sectors. As to the results of Mazars and RSM they have a long-

Industry	No. of companies	Central audit authority	Big4				Audit firms with international affiliation					Local firms						
			KPMG	PWC	D&T	E&Y	Crowe Horwath Hegazy & Co	Grant Thornton Helal & Co	Mazars Mostafa Shawky	RSM Magdy Hashish	Zarouq	Khaled Khaled & Co	Sherif Dabos	Fayez foad	Yousry khalaf	Abdula anany	Wahed abdel ghafar	Others
Building and material and construction	22	5	8	0	1	1	1	0	2	1	0	0	0	0	0	0	0	3
	6	5	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
	3	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Chemicals																		
Communication																		
Electrical																		
equipment and engineering	4	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Entertainment (TOURSM)	3	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Financial services																		
and banks	21	0	12	1	1	2	0	0	1	0	2	1	0	0	0	0	1	1
Food and beverages	9	3	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	1
Pharmaceuticals	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Holding companies	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Housing and real estate	14	4	4	0	0	1	0	0	2	2	1	1	0	1	1	0	0	0
IT	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Media	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Mills and storage	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Mining and gas	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Textiles and clothing	7	1	2	0	1	0	0	0	4	0	0	0	1	0	0	1	2	2
Utilities	6	2	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	0
Total	109	27	35	2	5	9	2	1	14	4	3	2	1	1	1	3	4	10

Table III.
Number of
companies each firm
audits in every
industry

established market presence and their main partners have strong relationships with many businessmen as well as sharing memberships in many business associations. One of the interesting facts to be derived from [Table III](#) is that other local firms audit 10 of 109 companies representing 9.2 per cent of the total number of companies. This indicates that with increased efforts to develop and grow or by undertaking mergers, there is a high probability of increasing their market share compared to the Big 4 and CAO.

[Table III](#)'s findings also provide important evidence that local firms with many clients in the audit market do not have a significant share of listed companies during the period under study. This is because of firms having no sufficient resources to develop their audit methodologies and technologies pertaining to industry specialization. Moreover, many of the local firms do not have sufficient, qualified and experienced staff possessing knowledge about international or local accounting and auditing standards, who can deliver the specialized industry audit services to listed clients within various industry sectors ([Samaha and Hegazy, 2010](#); [Mohamed and Habib, 2013](#); [Hegazy et al., 2015a, b](#)). These local audit firms concentrate on providing tax services to their clients even without providing a high-quality audit.

[Tables IV](#) and [V](#) provide evidence in relation to *H1* – auditor industry specialization is more likely to result in auditor's retention by their clients. The findings show a high percentage of clients maintained by most of the Big 4 compared to other audit firms with international affiliation and other local firms. Such results confirm that Big 4 audit firms can retain their clients' because of their industry specialization and their general high firm reputation compared with other local audit firms. This is illustrated in terms of the market percentage that each firm audit (see [Table IV](#)) and the average number of years that the firm spends with each client (see [Table V](#)). For example, for Buildings, Material and Construction, the Big 4 audited 44 per cent of companies in this sector. For Communication sector, only the Big 4 audited companies in this sector. Big 4 audit firms have a higher litigation risk and, therefore, a strong incentive to ensure audit quality. Moreover, Big 4 audit firms have more skilled staff and are represented in a greater number of foreign markets; this implies having more specialized knowledge which is necessary for difficult audit mandates ([Quick et al., 2018](#)). Non-Big 4 firms partially succeeded in maintaining their audit clients.

[Table V](#) further illustrates the average number of years each type of auditors retains their clients, which supports our first hypothesis as the CAO as well as the Big 4 retained their clients in most of the years audited compared to audit firms with international affiliation and other local firms. Such findings confirm results obtained from [Table IV](#). Moreover, [Table V](#) provides evidence that local firms have a unique status for the audit of textile and clothing companies with an average of five years. This is due to the type of family-owned businesses of these companies, requiring more personal relationships with the auditors rather than a high reputation and strong branding as is the case with the Big 4 and audit firms with international affiliation. Baker Tilly audits many textile and clothing companies along with Mazars. This is due to the split occurring few years ago, between both audit firms which resulted in a senior partner leaving Mazars and establishing Baker Tilly in Egypt, whilst acquiring many of Mazars' clients in the textile and clothing industry.

At the same time, [Table VI](#) provides additional evidence showing that both the CAO and the Big 4 firms have the highest percentage of clients' retention in most of the industries compared with other audit firms over the period of study. This is very clear with industries such as Buildings and Materials, Chemicals, Communication and Financial services. Comparing the results shown in [Tables V](#) and [VI](#), it is evident that the longer the auditor or

Industry	No. of companies (in absolute N's)	Central audit authority (%)	Big 4 in %				Audit firms with international affiliation in %						Local Firms in %					
			KPMG	PWC	D&T	E&Y	Grove Horwath Hegazy & Co	Grant Thornton Helal & Co	Mazars Mostafa Shawky & Co	RSM Magdy Hashish & Co	Zarouq	BDO Khaled & Co	Wahed abdel ghalaf	Sherif Dabos	Fayez Fouda	Yousry khalaf	Abdula many others	
Building and material and construction	22	22	36	0	4	4	4	0	8	4	0	0	0	0	0	0	0	13
	6	83	0	0	0	16	0	0	16	0	0	0	0	0	0	0	0	0
	3	33	33	0	33	33	0	0	0	0	0	0	0	0	0	0	0	0
Chemicals																		
Communication																		
Electrical																		
equipment and engineering	4	0	25	0	0	0	0	0	25	0	0	0	0	0	0	0	0	50
Entertainment (TOURISM)	3	0	66	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0
Financial services																		
and banks	21	0	57	5	5	10	0	0	5	0	9	4	5	0	0	0	0	5
Food and beverages	9	33	11	0	0	0	0	11	0	0	0	0	11	0	0	0	22	22
Pharmaceuticals	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
Holding companies	3	0	100	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
Housing and real estate	14	29	29	0	0	7	0	0	14	14	7	7	0	0	7	7	0	0
IT	1	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Media	1	100	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0
Mills and storage	5	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
Mining and gas	2	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Textiles and clothing	7	14	28	0	14	0	0	0	56	0	0	0	29	15	0	0	15	0
Utilities	6	32	0	16	16	0	16	0	16	16	0	0	0	0	0	0	0	0

Audit firms
and industry
specialization

Table IV.
The audit firm %
market share of each
industry for the year
2011

Table V.
Average number of
years each auditor
retains its clients in
every industry over
the period 2006-2011

Industry	Central audit authority	Big 4	Audit firms with international affiliation	Local firms
Building and material and construction	6	6	4	0
Chemicals	6	5	5	0
Communication	6	6	0	0
Electrical equipment and engineering	0	5	6	0
Entertainment (TOURISM)	0	5	1	0
Financial services and banks	0	5	3	0
Food and beverages	6	6	1	1
Pharmaceuticals	0	0	0	0
Holding companies	0	6	0	0
Housing and real estate	6	5	3	2
IT	0	0	0	0
Media	6	0	6	0
Mills and storage	6	0	0	0
Mining and gas	6	0	0	0
Textiles and clothing	6	3	3	5
Utilities	6	4	3	0

Table VI.
Total % of each
audit firms market
share out of the total
number of companies
in each industry

Industry	No. of companies	CAO (%)	Big 4 (%)	CPA with international affiliation (%)	Local firms (%)
Building and material and construction	22	22	45	16	17
Chemicals	6	83	16	16	0
Communication	3	33	100	0	0
Electrical equipment and engineering	4	0	25	25	50
Entertainment (TOURISM)	3	0	66	34	0
Financial services and banks	21	0	77	18	5
Food and beverages	9	33	11	11	45
Pharmaceuticals	2	0	0	0	100
Holding companies	3	0	100	0	0
Housing and real estate	14	29	36	42	14
IT	1	0	100	0	0
Media	1	100	0	100	0
Mills and storage	5	60	0	0	40
Mining and gas	2	100	0	0	0
Textiles and clothing	7	14	42	56	59
Utilities	6	33	33	34	0

the audit firm spend in an industry, the higher his or its percentage or market share in such industry becomes.

These findings provide evidence which supports the researchers' expectations that the existence of industry specialization in audit firms operating in the emerging Egyptian capital market has unique features which are different from audit firms in other developed markets. Specifically, the audit market in Egypt is not competitive and only a few audit firms are able to dominate the audit market. These results do not follow those presented by Wang *et al.* (2011) who found that the audit market in China is competitive and a single auditor is not likely to dominate an industry. For instance, the size of the audit firm, its

international affiliation and the government regulations have important and significant effects on the auditor retention and business growth for local Egyptian audit firms. This is especially the case for small clients or non-Big 4 firms. Again, the specialization and experience of the CAO and the Big 4 are considered the main factors behind the retention of auditors by the client.

Furthermore, Table VII provides evidence to support *H2* and partially support *H3*. It can be found that, despite the large market share of both the CAO and the Big 4, their ability to acquire new clients and see a growth rate is decreasing. In other words, the CAO and the Big 4 firms are losing clients in specific industries, while growing in others. But as an overall picture, their market share is shrinking. On the contrary, the market share of audit firms with international affiliation along with local firms, despite their non-specialty in some industries, is facing real growth with quite satisfactory rates. Table VII provides mixed evidence in relation to *H3* that there are no differences between the Big 4, the CAO and audit firms with international affiliation in relation to the increase/decrease in the number of audit clients for each type of audit firm during the period 2006-2011. Such evidence shows that during the period of investigation, auditing firms with international affiliation maintained most of their clients, and in some industry sectors such as Housing and Real Estate and Utilities, they even saw a significant increase. Moreover, the CAO did not see any significant movement in their portfolio of clients during the period under study because most of the increase in the publicly listed companies came from the private sector. Furthermore, the Big 4 saw some decline within their clients, especially in the communication, entertainment, financial services and banks, and textiles and clothing sectors. However, the Big 4 only saw an increase in the number of clients in the Holding industry.

Industry	The central authority			The Big 4			The Big 6 with Int. Affiliation			The local firms		
	From	To	% Δ	From	To	% Δ	From	To	%Δ	From	To	%Δ
Building and material and construction	3	0	(100%)	10	3	(70%)	3	2	(33%)	3	3	0
Chemicals	2	2	–	1	0	(100%)	1	0	(100%)	0	0	0
Communication	0	1	100%	3	2	(33%)	0	0	0	0	0	0
Electrical equipment and engineering	0	0	0	0	1	100%	0	0	0	2	2	0
Entertainment (TOURISM)	0	0	0	2	1	(50%)	0	0	0	0	0	0
Financial services and banks	0	0	0	8	3	(63%)	1	0	(100%)	0	0	0
Food and beverages	2	1	(100%)	0	0	0	0	1	100%	4	4	0
Pharmaceuticals	0	0	0	0	0	0	0	0	0	2	2	0
Holding companies	0	0	0	2	5	150%	0	0	0	0	0	0
Housing and real estate	2	3	(33%)	3	3	0	0	5	500%	0	2	200%
IT	0	0	0	0	0	0	0	0	0	0	0	0
Media	1	1	–	0	0	0	1	1	0	0	0	0
Mills and storage	2	0	(100%)	0	0	0	0	0	0	0	0	0
Mining and gas	1	1	–	0	0	0	0	0	0	2	0	100%
Textiles and clothing	1	1	–	2	0	(200%)	2	1	(50%)	4	6	150%
Utilities	1	0	(100%)	0	2	200%	0	3	300%	0	0	0
Total	15	10	(33%)	31	20	(35%)	8	13	67%	1	6	500%

Table VII.
The total percentage
increase or decrease
for each type of
auditor in each
industry over the
period 2006-2011

According to the researchers' opinion, there are several reasons to explain such results. First, the delisting of a client's company from the Egyptian Stock market may be one of the reasons for the decrease in the number of clients throughout the study period and not the resignation or dismissal of the auditor by the clients' management. *For example, some of delisted companies usually traded on the stock market for quite a period and were mostly audited by the Big 4 and CAO (newly privatized companies).* Second, the application and the practical implementation of both the Egyptian Accounting Standards as well as the Egyptian Standards on auditing during the late 90s helped many audit firms (local as well as those with international affiliation) improve their audit work and quality. Such development gave them a competitive advantage over the Big 4, given their reasonable audit fees and the existence of close relationships between their partners and the management of many family-owned listed businesses. *This affected the ability of the Big 4 to maintain their share of clients in the Egyptian stock market during such period, and resulted in an increase in audit clients for the other audit firms.* Third, local and audit firms with international affiliation offered their audit services at a lower fee compared with the Big 4 firms, a matter which affected the ability of the Big 4 to maintain their share of clients within each industry. *This was due to the difficulties facing the Egyptian economy and its political environment just before the 2011 Arab spring.* Fourth, the growth sustained by the Egyptian Stock Market during the period 2006-2011 resulted in *medium size companies* joining the stock market with their existing auditors who are not necessary from a Big 4 or an audit firm with international affiliation. Thus, this increases these audit firms' share in the market. The specialization in industries did not, however, justify monopolization. Fifth, more privatization of the listed companies with new investors buying such companies and gaining control of the management and the boards resulted in auditor changes of these companies. Finally, the cancellation of the tax exemption associated with listed companies in 2005 and the issuance of the new tax law resulted in significant changes and movements in the list of registered companies, thus affecting the structure of audit firms within those companies.

To conclude, the mixed results do not provide sufficient evidence to support the acceptance of *H3*. Moreover, no evidence is provided for *H4* related to audit firms with industry specialization dominating the industry markets or sectors. For example, in the Building and Construction industry which contains 22 companies, the results in [Table VII](#) indicate that there are about eight auditors in such industry which is the maximum number of auditors ever found in an industry recorded in the Egyptian Stock Market. The same applies to other types of industries including the Financial sector.

6. Conclusion

This research study investigates the implications of audit industry specialization on auditor's retention and growth in their business within an emerging economy. Auditors' retention would certainly help auditors better understand the client's system of operations including significant controls which may help to prevent and detect misstatements in the financial statements. This is supported by [Romanus et al. \(2008\)](#), ([Government Accountability Office \(GAO\), 2002](#); [Palmrose et al., 2004](#)) who indicated the effect of industry specialization in reducing the likelihood of restatements thus mitigating the negative capital market repercussions associated with these events. Such improvements in the quality of the financial statements because of the auditors' retention also affects the efficiency and effectiveness of the capital market system in emerging economies to the extent that it can increase investor confidence in corporate financial reporting and the role the auditing profession plays in the financial reporting process. The current study used data from annual

reports of the top 100 publicly held companies in the Egyptian stock markets during the period 2006-2011. The researchers attempted to answer several research questions and related hypotheses:

- RQ1.* Is there any relationship between auditor industry specialization and the auditor retention by clients' companies in an emerging market such as Egypt?
- RQ2.* Is there any relationship between auditor industry specialization and the growth in the auditor business represented by the number of clients in an emerging market such as Egypt?
- RQ3.* What are the reasons behind the change of auditors in publicly traded companies in an emerging market and whether auditor industry specialization influenced such change?
- RQ4.* Does auditor's industry specialization provide a mean to dominate the top industries?

These research questions were translated into four hypotheses which were empirically examined.

The study contributes to the supply-side auditor specialization research in many aspects. First, the study confirms prior research that auditor industry specialization is positively associated with audit quality (Balsam *et al.*, 2003; Krishnan, 2003; Carcello and Nagy, 2004; Francis *et al.*, 2006; Hegazy *et al.*, 2015a, b; Elder *et al.*, 2015). Also, regulators should be alert that the market takes both industry specialization and audit firm tenure into consideration when evaluating audit quality. This may enhance the competition in the audit market; thus, small non-Big 4 audit firms are encouraged to grow and develop more niche specialization with equal opportunities for all, resulting in high-quality audit and more reliable financial statements (Mohamed and Habib, 2013). Second, our results demonstrate that industry specialization has an important effect on the auditor's retention, especially for industries where capital investment and debts covenants are significant such as Building and Construction, Financial Services and Housing and Real Estate. Industry specialists have positive effects on the quality of audit provided. The Big 4 audit firms can retain their clients' because of their industry specialization and their brand name compared with local firms. Also, audit firms with international affiliation continued to compete with the Big 4 in retaining their clients and increasing their portfolio within each industry through their development of knowledge in accounting and auditing standards, providing lower audit fees and maintaining close relationships between partners and management of family-owned audit clients. Third, the results also provide evidence that the auditing profession is dominated by the Big 4 and the Central Audit Organization compared to audit firms with international affiliation and local firms. Such results are consistent with a Government Accountability Office's (GAO, 2003) survey which concluded that 81 per cent of respondents cited industry specialization or expertise as an important factor in appointing a new auditor. Fourth, the results of the current study enhance the understanding of the audit market in Egypt, and help Egyptian standard setters in their efforts to enhance a robust and efficient audit market. Such task includes ensuring companies' full compliance with the requirements of accounting and auditing standards. Our findings are consistent with a growing body of evidence that indicates that major auditing firms push towards industry specialization which results in explicit capital market benefits, by increasing the quality of the audit and, correspondingly, increasing the quality of corporate financial reporting. Our findings suggest that differentiated audit quality is valued by managers and controlling shareholders

in the Egyptian stock market. Fifth, the study highlights some of the reasons behind changes in audit firms within industry sectors such as listing or delisting of clients, the reduction of audit fees and more government ownership. Finally, Egyptian auditors will benefit more by continuing to develop and maintain strong industry expertise throughout most of their services, not necessary auditing, and assurance services, but also multi-layer services after their industry reorganization.

The research study, however, has several limitations. First, as hand-collecting data for the Egyptian audit market had a long and tedious process, we limited our sample to the top 100 publicly traded companies. This excluded the remaining companies trading in the Egyptian stock markets. Future research studies may extend investigations to all audit firms of publicly traded companies. Second, our empirical research did not investigate the hierarchical level within an audit firm where industry expertise can be assessed; whether it should be assessed at the partners, audit managers, audit supervisors or auditors' at large levels or all of them at the same time. Finally, as both audit firms and publicly traded companies in the Egyptian stock market have unique characteristics, such as the GAO auditing joint companies and strong government and regional as well as geographical influences in the selection of audit firms, the findings may not be applied to other audit markets except in similar emerging economies. The possible application of the analysis undertaken in this paper to other national settings requires potential research extensions. Moreover, future research should further investigate the extent to which management characteristics influence the decision to hire an auditor with industry expertise (Aier *et al.*, 2005). Also, there is a need to examine the extent to which local firm's industry specialization affects auditors' retention and growth given the special characteristics of such firms and the nature of their clients' portfolio.

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