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CATALYSTS OF FINANCIAL STABILITY””: ANALYZING THE NEXUS BETWEEN AUDIT QUALITY AND EARNINGS PERSISTENCE; EGX 30 TR INDEX; AN EMPIRICAL STUDY

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Abstract :

Our study aimed to explore the nexus between audit quality (AQ) and earnings persistence (EP) in Egypt. Using an ordinary multiple regression model from 2020 to 2023 for 21 Egyptian firms listed in the EGX TR Index, the study sample results demonstrate a positive and significant impact of audit quality and the persistence of earnings for 21 Egyptian firms. Meanwhile, audit quality significantly affects the persistence of Egyptian firm earnings by ensuring financial reporting reliability. Audit quality significantly influences investors and stakeholders' confidence and trust, promotes disclosure and transparency, and reduces information asymmetry by independent auditors. Furthermore, the study revealed a positive and significant impact of return on assets (ROA) on earnings persistence (EP), while there was a converse impact of number of shares (NS) and firm sector (SEC) on earnings persistence (EP). Our results uncovered important implications for Egyptian firms, highlighting the significance of audit quality and return on assets in driving earnings persistence. It emphasized the need for professional and governmental bodies to prioritize corporate governance and the transparency of financial reporting in Egyptian firms. In accordance with the overarching goals of the Egypt Vision 2030 plan for sustainable development.

Keywords: Audit quality- Earnings persistence- Return on assets-EGX TR Index-Egyptian context- Egypt Vision 2030

1. Introduction

Our study aimed to explore the nexus between audit quality, measured by audit firm size, and earnings persistence. as explained by (Ashbaugh &Warfield, 2003), numerous studies have focused on examining the essential role and effect of audit quality on earnings quality and persistence in various practical settings, using multiple and diverse measures. Audit quality plays a crucial and dependable role in firms' oversight and corporate governance, providing relevant and reliable opinions to decision-making users. To fill the research gap in Egypt, the study examined the Egyptian 30 Index (TR)¹ from year 2019 to 2022.

¹ Further details EGX 30 TR at <https://www.egx.com.eg>

Prior research examining the role of audit quality on earnings persistence, was based on two fundamental theories:

- 1- Theory of information asymmetry; according to (Jensen & Meckling, 1976). Managers who are better informed than other stakeholders act in more advantageous ways.
- 2- Theory of agency; based on (Berle and Means, 1932), they contended that a conflict of interest arises between firms' owners and agents as firms' agents might exploit the firm's assets for personal benefit. Moreover (Fan & Wong, 2005), mention that the requirement for independent audit rises as the disparity between the agent and the owner grows due to their divergent motivations and objectives.

1.1 Definition Audit Quality and Its Determinants

“Audit quality” is a prominent topic extensively examined in prior research within the realm of Accounting and Auditing, with several definitions (Sumiadji, et al., 2019). Audit quality (AQ) is a crucial issue in the field of capital markets and auditing (Kheirollahi, et al., 2014). (DeAngelo, 1981) described audit quality in terms of a joint probability of finding, revealing and documenting any errors or fraud in clients' financial statements, this definition emphasizes how important it is for auditors to find and disclose financial statement errors. By definition, AQ refers to essential and provide a reasonable assurance that the company's accounting data is reliable, transparent, and accurate (Alardah, 2023). Also (IAASB , 2018) define audit quality as the degree of confidence and trust in auditor report for Accounting information users. The same point of view is also showed by the (Public Company Accounting Oversight Board) PCAOB's (2014) that audit quality is the extent to which an audit fulfills the requirements of as creditors, investors, official authorities' regulators, and any other interested users. According to (Dang ,2004), auditing process is the process to provide reasonable assurance to firms interested users. Additionally, (Zoe-Vonna, 1988) described audit quality in terms of detecting and eliminating misstatements and manipulations of financial statements by auditors' capacity to (Titman & Trueman, 1986) defined in terms of the accuracy of reports provided by the auditor to interested users. Prior research has commonly employed the audit firm size as a primary criterion for evaluating the quality of audits within those companies. The reason for this is the dedication of these companies to a rigorous and publicly declared performance system that is applied in a systematic manner and significantly depends on the integration of technology with the evaluative expertise of the auditors. (Afifa et al., 2021; Houqe et al., 2017).

The credibility of financial reports relies on the audit quality. Different studies have demonstrated that audit firm size (audit quality) based on the Big-4 firms, auditors' tenure, industrial experience, their representation, litigation involvement, accrual practices, and other related variables (Hu, 2015 and Sumiadji et al. (2019)

According to (Alardah, 2023) audit quality generally affected by diversified factors; client pressure, independency, professional experience, , and effectiveness of firm audit committee.

Auditors' independence, assessing financial statements without bias, is crucial to the audit quality. several research investigations have shown that the lower independence the lower the audit quality (DeAngelo, 1981).

Francis et al. (1999) conducted a meta-analysis and concluded that auditor experience affect audit quality. A similar result showed by Al-Azzi and Al-Qudah (2016) in Jordan that audit quality is influenced by factors such as firm size, client demand, and auditor experience. According to Tyokoso et al. (2016), results showed that audit quality is diminished due to client demand, presence of an audit committee may have an impact on the quality of an audit due to their role to oversee and verify the audit process, Audit committee effectiveness results also supported by (Abdolmohammadi et al., 2015). Moreover, Alardah (2023) found that audit quality determined by audit fees, time pressure, and auditor tenure. Verma et al. (2024) examine whether the size of auditing firms with higher levels of audit quality affect earnings persistence, that the Big Four firms are believed to provide superior audits due to their abundant resources and established reputation. Big Four outperform non-Big Four in conducting audits, as shown by studies conducted by Alzoubi (2016), Sumiadji et al. (2019), Pham (2017), Adegbie (2019), Ticoalu (2020), Francis & Wang (2008), Francis & Wang (2008), and Wang et al. (2014).

According to Bissessur (2008), high-quality earnings offer reliable and impartial information that accurately represents the firms' profitability of firms. Furthermore, Khuong et al. (2023) pointed that the exceptional performance and error detection capabilities of large-sized audit firms significantly enhance audit quality, hence increasing user confidence.

Adegbie et al. (2019) found insignificant variation in the level of earnings persistence among firms audited by the Big4 vs non-Big4. Differentially, Lee (2008), Sumiadji et al. (2019) and Vichisarawong & Pornupatham (2015) discovered a significant relationship.

Audit quality proxied by auditor firm size, referred to Big 4, ranked by Revenu ; (Deloitte) Deloitte Touche Tohmatsu, (PwC) PricewaterhouseCoopers, (EY) Ernst and Young, and (KPMG) Klynveld Peat Marwick Goerdeler .

Khuong et al. (2023), Zakaria and Doud (2013), Gul (1989), Houghton (2001), Choi (2007), and Rezaei and Shabani (2014) have shown that Big 4 significantly affect earnings response coefficient. Contrary, Alzoubi (2016), Choi, Kim, Kim et al. (2010), Kim et al. (2003), Houque et al. (2015) and Choi & Doogar (2005) found that Big 4 firms, exhibit significantly lower levels of earnings management.

Furthermore, (Rezaei & Shabani, 2014; Francis & Yu, 2009, and Do, et al., 2020) identified that the Big4 auditors, have a lower reliance on a single client compared to smaller audit firms consequently, they are less likely to provide poor audit reports. Large-sized firms are obligated to provide services of superior quality in order to protect their reputation and rank. Small-sized firms are deficient in the technology, resources, auditors, and professional experience possessed by Big4 firms.

1.2 Definition and Importance of Earnings Persistence

Earnings information is crucial information for investors because they think that industries that produce promising earnings will have better prospects in the future and are earnings-oriented (Suharti, & Murwaningsari., 2024; Zhou, et al., 2022; Dechow & Schrand, 2010). (Sutisna & Ekawati, 2017) showed that earnings persistence is the repeated earnings expected to occur in the upcoming accounting periods resulting from firm operating income.

The emphasis on persistence as an inherent characteristic of earnings quality originates from the research conducted by Beaver & Morse (1978), where they highlighted the negative impact of temporary elements on earnings. Earnings persistency is often characterized by scientists as the quality of earnings that demonstrates both durability and recurrence (Rajizadeh & Rajizadeh, 2013). Studies demonstrate that earnings persistence clarify the positive relationship between earnings persistence and value of the firm, so high correlation coefficient denotes high persistence (e.g., Barth & Hutton, 2004; Jonas & Blanchet, 2000; Stigler, 1963; Lipe, 1990, and Sumiadji, et al., 2019). Earnings persistence is how unexpected current earnings affect future earnings (Zhou, et al., 2022). Richardson et al. (2005) suggested that after inverting income from the current year earnings persistence calculated by accounting earnings continuing into the next quarter., Sutisna & Ekawati (2017) define earning persistence as the constant and frequent prediction of accounting earnings in future years.

An alternative measure of earnings quality is earnings persistence (Vichitsarawong & Pornupatham., 2015; Dechow et al., 2010; Karim & Sarkar., 2020; Lev & Thiagarajan .,1993, and Juliani & Siregar, 2019). Based on (Kang et al., 2012) results, earnings persistence assist firms to provide more valuable information to investors of future cash flows and profitability through financial statements.

Earnings quality model is determined by the user's interest (Menicucci, & Menicucci 2020). (Gissel et al., 2005) explained the idea by defining earnings quality as the extent and ability of firm's earnings to accurately reflect and predict its actual and future earnings respectively.

Fathussalmi (2019) defines earnings quality as earnings sustained over time and consist of cash and incurred expenses that represent firm financial performance. Furthermore, (Pratomo, et al., 2022) explained that earnings quality is beneficial to financial statement users in providing an accurate assessment of the firm's future performance and informs their actions. while (AL-Maeni & Nuri, 2017) defined earnings quality as the firm's sustainability, cash flow generation, and operational earnings prediction. (Antonio, et al., 2019) pointed that market response for shares and effective corporate governance were mediated by earnings quality and that higher-quality earnings are more trustworthy and steadier, which may boost share prices and investor confidence. (Ali, 2015) found that high-quality earnings reduce share price volatility and positively affect short-term share performance.

Focusing on firm operations (Bashiti & Rabadi ,2011; Tee & Rasiah 2020; Dichev, et al., 2013; Nakashima, 2019, and Valeny, et al., 2024) pointed out that earnings quality is a firm's ability to generate operating earnings through its financial operations consistently and that earnings persistence provides a source of data for decision-making and is considered an assessment of the future firms' performance that increases the ability of financial statements users to assess firm value over the long run by building trust about the effectiveness of firm's operations.

Earnings persistence, which measures the degree of informativeness of earnings, is considered a crucial aspect of financial reporting and firm valuation accrual models by avoiding the possible inaccuracies inherent measurement mistakes (Kang et al., 2012). Therefore, the degree to which profits provide valuable information about a company's financial success is a very beneficial

characteristic when making economic decisions (An, 2022, Dechow et al., 2010, Kang et al., 2012).

Based on the research conducted by Khuong et al. (2023), firms that consistently maintain their profits and cash flow over time tend to have higher earning persistence. This characteristic might be beneficial when evaluating the value of their stock. In contrast, companies that encounter challenges are more prone to having earnings that cannot be maintained and worse quality of profits, which is also evident in a reduced level of earnings consistency.

According to (Atashband, et al.,2014), earnings persistence shows the efficiency of use of available sources in firms operations. (Kormendi & Lipe, 1987, Dechow et al., 2010; Karim & Sarkar., 2020). Different views showed that the stability of the firm's future earnings are significantly influenced by its earnings persistence (Frankel & Litov, 2009, Dichev, & Tang, 2008; Dichev, et al., 2013), which also positively correlates with higher firm value and lower transaction costs and market value prediction (Zhou, et al., 2022 and Collins & Kothari, 1989).

Earnings, commonly understood, refer to the financial gains of a firm, calculated by subtracting expenses and taxes from revenues. According to Alardah (2023) and Baber et al. (1998), stakeholders prioritize their knowledge about estimating future earnings by analyzing financial indicators and accounting numbers from the firm's reported financial statements. Forming assessments and projecting future gains only on immediate profitability often exposes investors to potential hazards. Consequently, a firm's earnings that are more enduring result in earnings projections that are more convincing and precise by investors. By exerting influence over financial and investment choices, one may effectively assess a firm's performance and worth, taking into account both present and future performance. This helps to mitigate investment risks and incentivize managers to strategically manage earnings, hence minimizing the probability of making poor judgments (Ma, 2011).

According to the FASB Conceptual Framework, earnings persistence is a value relevant indicator to financial users in providing sufficient information for decision-making.

Earnings quality is assessed by financial analysts based on the degree of alignment between reported earnings and actual profits. It is well understood by investigators that cash flow is generated by continuous and repeatable profits from day-to-day activity (Sajadi, 2013). When earnings are consistently stagnant, firm management may strive to enhance performance (Mashayeki & Aghel, 2016). This impacts the capital market responses of investors. Earnings persistence is quantified by the evaluation of a firm's performance continually (Douglas et al., 2020) and by analyzing the revenue generated from capital markets and the fluctuations in stock prices (Canina & Potter, 2019). Ultimately, improved earnings persistence enticed investment and capital, bolstered investor confidence in financial disclosure, and stimulated business operations (Alardah, 2023).

Furthermore, (Valeny , et al., 2024; Onaolapo & Kajola, 2010; Kozlenko, 2015; Amidu & Harvey, 2016), denote that firm size positively significant affects earnings persistence, resulting from firmness operations. In contrast, (Goddard, et al., 2005) found a negative effect of firm size on earnings. Also, (Amato & Amato, 2004; Aggrey et al., 2010) indicates that size has an impact on

both positively and negatively direction on firm earnings. In contrast, Earnings persistence is not significantly correlated with firm size, as demonstrated by (Yurtoglu, 2004; Gschwandtner, 2005).

1.3 Audit Quality and Earnings Persistence

Several studies (DeFond & Zhang, 2014) have emphasized on the significance of audit quality and that high-quality audits can enhance users trust that leads to maximizing the firm's value in the short and long term by new investment with a lower cost of capital. On the other hand, low-quality of audits have been connected to financial scandals, which can cause to reputational damage and financial losses for companies and investors alike (Krishnan & Schauer, 2000) .

According to (Palmrose ,1986 and Sajadi, 2013, and Karimi, 2013) audit quality is related to earnings quality and is determined by the information accuracy provided to users from the auditor that enable to estimate the firm value accurately. Notably, shareholders, who utilize financial statements, view earnings as a crucial factor in their investment decisions. The higher their confidence in earnings persistency, which is determined by the audit quality, the more likely they are to invest in the firm.

Alia, et al. (2020) noted that high-quality auditing increase firm value by reduces information asymmetry, agency costs. With the same idea, (Afifa et al., 2020 and Muttakin et al., 2017) showed that audits may restrict firm earnings management and improving earnings quality by enhancing investors' confidence in financial statements. Results of the relationship between the earnings quality and persistency and the audit's quality exhibited variability. Studies conducted by (Puteri & Saraswati, 2021 and Anggrainy & Priyadi , 2019) concluded that there is no relationship between them. However, the studies conducted by (Hartoko & Astuti, 2021and Wijaya, 2020) showed an impact of audit quality on firm earnings quality and persistency.

1.4 Theoretical base on the relationship between audit quality and earnings persistence

In 1976, Jensen and Meckling introduced the agency theory; that addresses the relationship between agent and owner with agency interest conflict.

(Pratomo, et al., 2022) documented a bidirectional relationship between agency conflict and earnings quality. (Andriani & Nursiam 2017) indicated that audits provide a more validated information helps to reduce agency conflict between owners (shareholders) and agents. Earley, (Fan & Wong, 2005) supported the idea that auditing is seen as a method of control to reduce the agency interest conflict costs and that auditing is seen as a method of control that will likely result in a greater need for audits overall and enhance their significance in the future, a lower agency costs (Anwer et al., 2008 and Luo et al., 2018), and reducing information asymmetry, (Almutairi et al., 2009; Varici, 2013) .

Audits have a crucial role in reducing moral hazards and information asymmetry in order to provide stakeholders confidence in the information they receive and enable them to rely on the financial reports that managers generate in their capacity as agents, it is possible to hire a third party to assess the information environment. (Khuong, et al., 2023).

1.5 EGX 30 TR Index

1.5.1 EGX 30 TR Eligibility.

The Egyptian Exchange (EGX) introduced the "EGX 30 TR" Total Revenue Index, on August 22, 2019, with the aim of assessing market performance and catering to the diverse requirements of investors. The index is developed according to internationally recognized standards in the index business.

The EGX 30 TR index comprises the 30 most liquid and active firms, weighted based on their adjusted free floating market capitalization. The index includes only firms' common shares. Firms included in the index should trade for 95% or more of the trading days in the six months leading up to the periodic review date. The liquidity ratio is regarded as one of the most critical criteria for the eligibility of firms within the index.

The EGX 30 TR calculates the overall return of the underlying index components by considering both the capital performance and reinvested income, which includes declared dividends. The calculation of the index is based on the latest price rather than the closing price determined by the VWAP (Volume-Weighted Average Price).

1.5.2 EGX 30 TR Calculation

Firstly: Calculation Methodology²

- Calculation of Capital Index using the Last Price:

$$\text{Index Value} = \frac{\sum (\text{Last price} \times \text{Number of adjusted listed shares} \times \text{Percentage of free float} \times \text{Exchange Rate})}{\text{Divisor}}$$

- Ex-Dividend Adjustment "XD"

$$XD = \sum_{(i=1)}^N \frac{g_i \times s_i \times f_i \times wme_{(i-1)}}{d} / 100$$

- Calculation of the Total Returns Indices

$$R_i = \{R_y \times I_y / (I_y - XD)\} \times I_i / I_y$$

$$R_i = R_y \times I_y / (I_y - XD)$$

Second: Divisor

$$\text{Index Divisor at } t_0 = \text{Adjusted Market Value} / \text{Index value to} = 100 \quad \text{TR Index Value}$$

This index ensures that there is no excessive focus on a single industry or area, resulting in a well-rounded representation of diverse industries and sectors in the economy.³

1.6 Study Importance

² A full copy of EGX30 TR calculation methodology at <https://www.egx.com.eg/en/indexrulesmethodologyegx30-tr.aspx?nav=15&>

³ Appendix (1) shows the current constituents of EGX 30 TR.

The current study provide important contributions to the existing knowledge in two key areas:

- It explore the nexus between audit quality and earnings persistence in EGX30 TR. This assist to reveals the audit quality current state in Egyptian firms.
- It examine the audit quality and earnings persistence for EGX 30 TR index comprises the 30 most liquid and active firms.

1.7 Study Objectives

The current study explored the nexus between audit quality and earnings persistence and addressed the following questions:

- What is the current state of audit quality for the Egyptian firms in EGX30 TR.
- How strong is the nexus between audit quality for the most active Egyptian firms in EGX30 TR.

The study is structured as follows; Literature Review and Hypothesis Development section provides an overview of previous literature and subsequently formulates the study hypotheses. Research methodology is then outlined. Statistical analysis and empirical results is subsequently presented, followed by a results discussion, and finally a conclusion and identification of potential areas for further research presented.

2. Literature Review and Hypothesis Development

The following section highlights numerous previous research that have yielded significant findings in examining the relationship between audit quality and earnings persistence. Moreover, the literature review and development section serves to elucidate the cruciality of the current study and its relevance to Egypt, particularly in relation to the EGX TR index, as well as its potential to advance the development of the hypotheses being tested within the Egyptian context.

2.1 Literature Review

Several prior studies have sought to examine the relationship between audit quality and earnings persistence from various perspectives. The findings of these studies have exhibited considerable variation, as outlined below:

2.1.1 Earnings persistence

(Siladjaja & Jasman, 2024) tested earnings quality effect on earnings returns for 154 Indonesia-listed manufacturing firms from 2010 to 2022. Their results show a positive relationship between high earnings quality and future returns. High-quality accounting information is valuable for predicting firms' future performance.

(Hertina et al., 2023) investigated how the audit committees, as measured by expertise, size, meeting frequency, firm size, affects the reliability of financial statements. The study focused on 33 manufacturing companies listed on the Indonesia Stock Exchange from 2013 to 2016. The findings suggested that audit committee size, the frequency of audit committee meetings, firm size, and audit quality do not possess the capacity to impact the dependability of the financial reports. The findings indicated that audit quality did not exert a moderating influence on the association between the firm size and the integrity of financial reports.

(Pratomo et al., 2022) using a quantitative method for 16 Indonesian non-financial listed firms examined the effect of audit quality on earnings quality as measured by board diversity for the years 2016–2020. Their study finds that audit quality affects earnings quality in terms of Big-4 firms or audited by non-Big-4 firms.

(Zhou et al., 2022) pointed the negative relationship between earnings persistence and audit fees of listed firms in Shanghai and Shenzhen in the years 2011 to 2019. Their results revealed that

earnings persistence strongly and significantly affects abnormal audit fees by reducing operating risk in family firms with environmental risk.

Khuong et al. (2023) examined 228 Vietnamese firms to determine how audit quality, measured by firm size, impacts earnings persistence for the years 2014 to 2017. Their results indicated a direct impact between audit quality and earnings persistence. Notably, big-4 auditing firms had a substantial impact on this relationship. and that as audit quality increases, earnings persistence increases. Furthermore, it is crucial for publicly traded firms to hire audit firm that provides exceptional audit services to improve their financial statements relevance and reliability. Consequently, this will enhance the stability of earnings and operational results.

(Rajizadeh & Rajizadeh, 2014) investigated the key factors of earnings persistence in 111 Iranian firms listed from 2006 to 2009. These factors included operating cash flow, firm size, interest-bearing indebtedness, and directors' independence. The findings indicate a negative relationship between cash flow, interest-bearing debts, and earnings persistence, suggesting that as cash flow and interest-bearing debts increase, earnings persistence decreases. Additionally, as director independence increases, earnings persistency increases.

2.1.2 *Audit Quality*

From year 2005 to 2018 to a 4.774 UK listed firms, (Chowdhury & Eliwa, 2021) find no impact of Big 4 auditors in decreasing earnings management, in contrary, Big-4it positively associated with large scale of earnings management that signal to the limited guide in Auditing standards to capture accrual earnings management.

Between 2012 and 2017, Abu Afifa & Saleh (2023) explored the impact of audit quality on Jordanian industrial public listed firms' performance. Auditor tenure compared to auditor industry specialization, and compared also to auditor firm size was Audit quality measured using proxies, on firm performance was measured using (ROA return on assets), (ROE return on equity), and (EPS earnings per share). Their results indicate that longer auditor tenure negatively impact (ROA), however auditor specialization expertise and firm size both insignificant effects (ROE) and that size of an auditing firm significantly impact (ROA) and (EPS).

Furthermore, Obaje & Ogirima (2023) analyzed the annual reports from 2012 to 2021 of 10 oil and gas Nigerian listed firms and explored the impact of audit quality on firm performance. The study found that the audit tenure, has a notable adverse effect on ROA. Specifically, a shorter tenure of auditors is associated with an enhancement in the firm financial performance. The firm audit committee size has positive insignificant effect, attributed to "control role" the firm board. Contrarily to the often predicted, audit firm size negatively significant.

Moreover, (Adegbe et al., 2019), analyzed data from the years 2008 to 2017 and pointed out a statistical insignificant link between audit firm size on earnings persistence. Their results were in direct opposition to numerous investigations conducted on the same subject.

(Karim & Sarkar, 2020) Investigate the effect of number of auditors footnote by Big-4 firm auditors VS non-Big-4 firm auditors on earnings persistence for 1.072 in years 2008 to 2013. the study found the higher number of footnotes the lower the earnings persistence from year to year but this is not applied with Big-4 firm auditors have a smaller number of footnotes when audited by Big-4 firm auditors.

(Ticoalu & Panggabean, 2020) found that earnings persistence from year to year, yearly systematic risk, and firm audit quality impact Indonesia Stock Exchange and Bursa Malaysia firms' earnings response coefficient for a sample of 45 of Malaysian and 115 Indonesian listed firms from 2013 to 2017. Earnings persistence did not alter earnings response coefficients of Indonesia Stock Exchange-listed firms. Indonesia firms ERC increase with systematic risk. Audit quality does not impact firms' earnings response coefficients. Also, in Malaysian-listed firms' ERC are adversely affected by earnings persistence. Bursa Malaysia-listed firms have lower ERC due to systematic risk. Quality of audit does not alter ERC of Bursa Malaysia-listed sector firms.

(Phan, et al., 2020) investigated Vietnamese firms to examine the influence of audit quality on firm performance. The results showed a positive influence of audit quality on both financial and non-financial performance.

Sumiadji et al. (2019) found that the audit firm size (Big-4 firm vs. non-Big-4 firm) positively influenced the earnings persistence of 116 Indonesian listed firms from 2011 to 2014. Their results were in direct opposition to previous research (Manry et al., 2008; Myers, 2003; Gul, 2009) and the results supported by (Zakaria & Daud, 2013; Alzoubi, 2016; Houqe et al., 2015) demonstrates that the auditor size, as a measure of audit quality, positively influences the quality of earnings, with the Big 4 firms progressively improving earnings persistence.

2.1.3 Audit Quality, Earnings Persistence, and Further Relationships

An extensive analysis was conducted by (Ciconte & Kitto, 2023) on U.S. listed firms and investigated the relationship between local statues of audit market, the quality of audits, and the level of audit effort. The study aimed to identify any abnormal patterns of earnings persistence. They developed a competition metrics by using PCAOB-supplied auditor realization rates from 2008 to 2016. They found that consistent and atypical earnings in U.S. Big 4 audit engagements, indicating that certain regional audit markets lack competitiveness. Individual offices have consistent aberrant returns, indicative of their originality. When there is no rivalry, earnings persistence is negatively correlated with the amount of work put into auditing and correlated-positively with audit quality.

Ching et al. (2015) examined in Malaysian listed firms, the link between audit quality, level of earnings management, firm and financial performance. The results indicated that there is no restriction on management ability to manage earnings due to the quality of audits. Enhanced audit quality can enhance a firm's performance, and often, larger audit firms exhibit superior audit quality. Earnings management mediates the link between audit quality and firm financial performance. In simple terms, it may be stated that both Big-4 and non-Big-4 audit firm quality do not enhance financial performance.

Hussainey (2009) investigated the impact of firm type (Big-4 VS Non-Big-4) audit quality on investors' capacity to predict future profitability. A total of 4,417 UK firms were surveyed from 1996 to 2002 to gather data. The results revealed that UK firms audited by the Big4 firms assist investors users in predicting future profitability. The investigation revealed that Big4 companies maintain a competitive advantage in audit quality and provide financial statements of superior quality compared to other audit firms.

2.1.4 Audit Quality and earnings persistence

The following section contains many previous studies that focused on examining the influence of audit quality (using various metrics) on earnings persistence. Previous studies aimed to emphasize

the need of enhancing the quality of audits in order to ensure firms earnings persistence. It specifically targeted corporate managements, auditors, professional bodies, competent authorities, and official regulatory institutions, urging to prioritize audit quality.

Considering the above discussion, between 2008 and 2017, the impact of firm audit quality on earnings persistence of 30 listed Nigerian firms was examined by (Adegbe, et al., 2019). The results indicated that earnings persistence insignificantly influenced by audit quality. These results corroborated the results of (Kheirollahiet, et al., 2014; Devos & Sakar, 2015).

(Kheirollahi, et al., 2014) using questionnaire, examined how audit quality (measured by firm size, firm age and experience, and reputation) affected earnings persistence (measured by Decchow & Dichev model, 2002) of Tehran Stock Exchange-listed companies. A substantial positive connection was found between firm audit quality and earnings persistence and that high-quality auditors may utilize to analyze how it affects their earnings persistency.

(Devos and Sarkar, 2015) explored the relationship between audit quality, earning persistence, and footnotes number in 10ks as a proxy for financial reporting quality. Also, the study examined auditor reputation and the numbers of footnotes. The study results revealed that less footnotes found in firms audited by the Big 4 firms compared to firms audited by non-Big 4 auditors. In addition, the study showed that the higher the number of footnotes, the lower in the next year and in the subsequent two years earnings. Conversely, firms that audited by outside auditors (non-big4) may complicate firm's annual reports by including more footnotes, which subsequently usher to earnings persistence decrease.

In Egypt (Ismail, M. A., 2020) found a positive relationship between audit quality and earnings persistence using audit firm size and market to book ratio as key factors for audit quality and use earnings persistence, predictability, and smoothness as earnings quality factors ;earnings quality with different proxies for a sample of 74 Egyptian listed firms included in EGX 100 in years 2011 to 2016. Operational factors were compared to audit and earnings quality to analyze how audit quality factors impact earnings quality factors. The study hypothesizes that audit quality factors are positively affect earnings quality. Analysis revealed that audit quality measures and earnings quality proxies are positively correlated. Earnings persistence is positively significantly affected by audit firm size. This opposes predictability smoothness and MTB and earnings quality proxies are not related.

Based on the above, our study explored the nexus between audit quality and earnings persistence to the EGX TR index. The study assessed an additional sample of Egyptian firms included in one of the latest indexes of the Egyptian context. (EGX30 TR) was launched in late August 2019. Therefore, the testing period included the years 2020, 2021, 2022, and 2023. The fluctuations in the components operate as indications of the nexus between the different variables over a while. The relationship test is advantageous for obtaining insights into the strengths and limitations of the relationship, as well as determining if it has remained unaltered. An essential aspect of generalizing findings is including an extra sample, ensuring that they are not confined to a specific sample. Furthermore, it is important to do re-tests on relationships to maintain the objectivity and consistency of prior findings.

2.2 Hypothesis Development

Financial statements users viewed audit as a way to enhance firms financial information quality which factor will have the most significant influence on firms' earnings persistence. According to (Wallace, 2004), audit can enhance investors' confidence in companies by means of audit reports,

hence incentivizing them to invest in both current and future endeavors of these companies. Thus, the first hypothesis states:

- H₀: Audit quality does not affect Egyptian firms' earnings persistence.***
H₁: Audit quality affect Egyptian firms' earnings persistence.

The following diagram illustrates the nature of the nexus that examined via study hypothesis

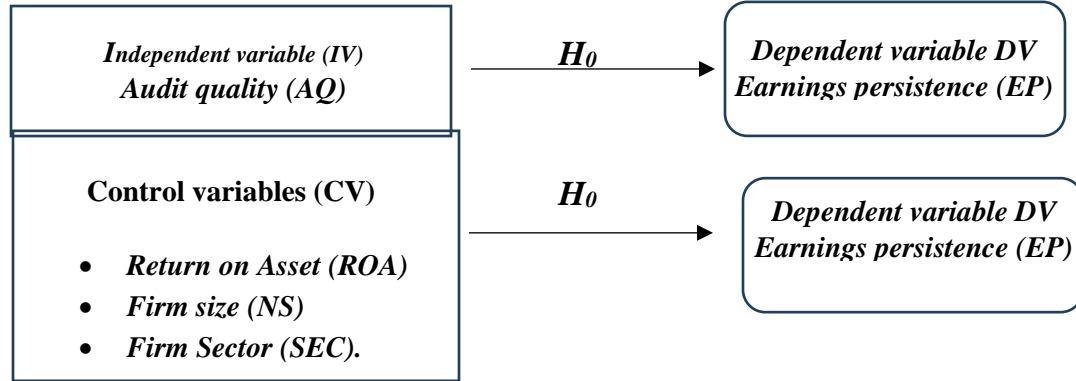


Figure1: Study Hypothesis diagram

3. study Methodology

3.1 study design

Our study examined the nexus between audit quality and firms' earnings persistence in Egypt. Using the quantitative approach (Given, 2008), we measured audit quality as the independent variable using the size of the audit firm, while we measured earnings persistence as the dependent variable using the earnings persistence of the firms in the EGX30 TR-sample from 2020 to 2023, and the control variable as the firm's outstanding shares from the same period. We excluded financial firms because their unique auditing and accounting procedures set them apart from firms in other sectors.

3.2 Study variables

To examine the nexus between audit quality and earnings persistence for EGX 30 TR firms, firm audit quality is measured by on audit firm size. Numerus studies use the audit firm size in measuring audit quality (Ticoalu & Panggabean, 2020, Healy and Wahlen, 1999, and DeAngelo, 1981) A dummy variable is used, with a value of 1 if the audit firm is one of the Big4, and 0 if it is not. Also, earnings persistence was measured using (Coelho et al, 2011) as follows;

$$EPS_{it} = B_0 + B_1 EPS_{it-1} + e_t$$

(EP) Earnings Persistence; was measured by the lagged coefficient (**B₁**) of the current firm earnings (EAR_t) on past year earnings (EAR_{t-1}), **B₁** is the earnings persistence parameter, The firms' earnings persistent whenever the coefficient B₁ approaches to one.

Our study also uses firm size, measured by firm share numbers, as a control variable. Previous studies have demonstrated that larger firms, whether measured by assets, number of shares, or book value, demonstrate greater earnings persistence than smaller ones. The reason for this is that larger firms encounter reduced risks of earnings volatility between different financial periods (Lys & Watts, 2013; Vichisarawong & Pornupatham, 2015).

3.3 Study model

To test study hypothesis, the study model constructed as follows;

$$EP_{it} = \alpha + B_1 AQ_{it} + B_2 NS_{it} + B_3 ROA_{it} + B_4 SEC_{i,t} + e_{i,t}$$

Where;

EP_{it} : is firm earnings persistence i at year t.

$AQ_{i,t-1}$: is the Audit quality in firm i at year t

ROA_{it} : is firm i return on asset. "Control variable".

NS_{it} : is firm i size measured by firm i number of shares at year t "Control variable".

SEC_{it} is firm i sector. "Control variable".

$e_{i,t}$: is the error term.

3.4 Sample selection and Data collection

Our study data were gathered from EGID "Egypt for Information Dissemination", Investing.com, Mubasher Misr, and firms' websites. The study sample size were EGX30 TR from Egyptian Exchange. Financial firms and banks were excluded due to different accounting standards. The final sample size were 21 firms⁴. The data included and tested includes; Annual financial statements reports, audit reports.

To ensure generalizability, the final sample consists of 21 firms from different security exchange industry sectors. The current study spans from the year 2020 to the year 2023 as the EGX30 TR was originally launched in year 2019.

4 Statistical Analysis and Empirical Results.

As shown in Table (1), it displays the descriptive statistics for five variables: earnings persistence (EP), audit quality (AQ), return on assets (ROA), firm number of shares (NS), and firm section (SEC). We described all variables using the minimum, mean, maximum, and standard deviation. "Earnings Persistence (EP)" ranges from 0 to 1, with an average of 0.76 and a standard deviation of 0.428. "Audit Quality (AQ)" ranges from 0 to 1, with a mean of 1, and an average value of 0.5, with a standard deviation of 0.5. The return on assets (ROA) ranges from 0.26 to 53.32, with a mean of 10.25 and a standard deviation of 9.44. "Firm number of shares (NS) has a range from 61.5 (in thousands) to 3018.9, a mean of 1136.84, and a standard deviation of 770.39.

For firms' sector, study sample firms were categorized based on the table provided in the appendices. Appendix 1 displays the coding employed in the study, whereas Appendix 2 exhibits the coding for each company along with their respective frequencies.

⁴ Some firms were excluded due to incomplete or interim annual reports only.

Table 1: Descriptive statistics

<i>Variable</i>	<i>Min</i>	<i>Max</i>	<i>Mean</i>	<i>Std. dev.</i>
<i>EP</i>	<i>0</i>	<i>1</i>	<i>0.76</i>	<i>0.428</i>
<i>AQ</i>	<i>0</i>	<i>1</i>	<i>0.5</i>	<i>0.5</i>
<i>ROA</i>	<i>0.26</i>	<i>53.32</i>	<i>10.25</i>	<i>9.44</i>
<i>NS</i>	<i>61.5</i>	<i>3018.9</i>	<i>1136.84</i>	<i>770.39</i>

Also, Table (2) reveal that all variables Pearson's correlation factor is less than 0.5 which indicates no significant multicollinearity.

Also, Table (2) displays the subsequent correlations: Person's correlation coefficient of 1.000 implies a perfect positive relationship between a variable and itself, demonstrating persistence and consistency. Person's correlation coefficient of 0.7 suggests a strong positive association between earnings persistence (EP) and audit quality (AQ). For return in assets (ROA), Person's correlation coefficient of 0.414 suggests a weak positive linear association between earnings persistence (EP) and return on assets (ROA). Furthermore, Person's correlation coefficient of -0.128 suggests a weak negative linear association between earnings persistence (EP) and Number of shares (NS). And, finally, Person's correlation coefficient of 0.07 suggests a positive weak association between earnings persistence (EP) and firm sector.

Table 2: Person's correlation

<i>Variable</i>	<i>Persistence</i>	<i>Audit Quality</i>	<i>Return on Assets</i>	<i>Number of Shares</i>	<i>Sector</i>
<i>EP</i>	<i>1.000</i>				
<i>AQ</i>	<i>0.7</i>	<i>1.000</i>			
<i>ROA</i>	<i>0.414</i>	<i>0.266</i>	<i>1.000</i>		
<i>NS</i>	<i>-0.128</i>	<i>0.424</i>	<i>-0.048</i>	<i>1.000</i>	
<i>SEC</i>	<i>0.07</i>	<i>0.151</i>	<i>0.295</i>	<i>-0.206</i>	<i>1.000</i>

Table (3) shows that adjusted R^2 for the study model which reveal that Audit quality (AQ) (with control variables) explains 0.31 % of the change in firms' earnings persistence (EP). Also, P-value for AQ significantly affect EP which largely indicates the significant and positive impact of audit quality on the sample firm's earnings persistence.

The return on assets (ROA) coefficient is positive (0.16), suggesting a positive significant impact on earnings persistence and ROA ($p < 0.05$; $P=0.043$). Also, Number of shares (NS) coefficient is positive (0.050), suggesting a positive insignificant impact on earnings persistence ($p > 0.05$; $P=0.125$). and finally, Also, firm sector (SEC) coefficient is positive insignificant impact on (0.124) earnings persistence ($p > 0.05$; $P=0.334$).

Table 3: Model results

<i>Variable</i>	<i>Coef.</i>	<i>t</i>	<i>Sig</i>	<i>Adj R²</i>	<i>F</i>
<i>AQ</i>	<i>0.229</i>	<i>1.68</i>	<i>0.002</i>	<i>0.31</i>	<i>1.44</i>
<i>ROA</i>	<i>0.16</i>	<i>1.38</i>	<i>0.043</i>		
<i>NS</i>	<i>0.050</i>	<i>0.59</i>	<i>0.125</i>		
<i>SEC</i>	<i>0.124</i>	<i>0.43</i>	<i>0.334</i>		

5 Results Discussion.

The study aimed to explore the nexus between audit quality (AQ) and Earnings persistence (EP) in Egyptian firms and what is the degree of the audit quality impact (Big-4 VS Non-Big-4), on earnings persistence in the Egyptian TR Index. These findings provide gaudiness that audit quality can improve financial statements relevance and reliability by reducing earnings management and increasing earnings persistence. furthermore, the Audit quality findings supported by results of (Wijaya, 2020; Hartoko & Astuti ,2021).

Moreover, return on assets was positively significantly impact earnings persistence with a p-value of 0.004, which provide evidence that the higher the firm return on assets, the higher firm earnings persistence that encourages firms to increase their asset investments in order to guarantee long-term earnings persistence. the findings also supported by (Khuong et al., 2023)

Conversably, the negative results between earnings persistence (EP) and both firm number of shares (NS) and firm sector (SEC) implicitly indicate the weak effect of each of them, this could be attributed to the firms' share number variation across sample firms included. It might be advantageous to utilize an additional variable to quantify the firm size. In relation to the firm sector in which the firm operates, there exists a distinction among firms that fails to fully capture the extent of their differences. Divergently research by (Puteri & Saraswati, 2021 and Anggrainy & Priyadi, 2019;) supported the previous results.

To summarize the above, the results provide evidence supporting the impact of audit quality on earnings persistence in Egyptian firms. Audit quality is positively and significantly impact TR firms' earnings persistence. Table (4) shows the results of testing the study hypothesis.

Table 4: Hypothesis results

Hypothesis	Result
H₀: audit quality does not affect Egyptian firms' earnings persistence	Rejected*
H₁: audit quality does affect Egyptian firms' earnings persistence	Accepted
Adj OR²	0.31
*Significant at 0.002 P-value	

6 Limitations and Future Research.

The current study only tested EGX30 TR index firms, as it is one of the crucial indexes in the Egyptian Stock Exchange. This could exacerbate the inability to generalize the results and support the need to test a larger number of firms and other indicators. The current study includes the following limitations:

- The results may be less generalizable due to the small sample size and the exclusion of financial and dollar-traded firms.
- The study period coincided with the Corona pandemic, potentially contributing to the weak persistence of earnings.

- The lack of correlation between earnings persistence and both the number of firm shares and the industry in which the firm operates suggests a limited influence from both factors.
- In the future, it may be advantageous to use an additional variable to quantify the company's magnitude. In relation to the industry in which the firm operates, there exists a distinction among companies that fails to fully capture the extent of their differences.

7 Summary and Conclusions.

This study contributed to clarifying more information about the nature and the nexus of the relationship between audit quality and earnings persistence for TR Index firms, which are the highest in terms of total revenues between Egyptian firms. The results revealed that firm audit quality (AQ) significantly affects earnings persistence (EP) in Egyptian firms, which explains 0.31% of the change in EP. The return on assets (ROA) coefficient is positive, suggesting a positive impact of ROA and earnings persistence. Number of shares (NS) and firm sector (SEC) both coefficients are positively insignificant. The findings support the idea that firms audit quality can improve financial statement relevance and reliability by reducing earnings management and increasing earnings persistence. However, the insignificant results between earnings persistence, firm number of shares, and firm sector suggest a weak effect, possibly due to variations in share numbers across firms. The study revealed significant implications for firms, emphasizing the importance of audit quality and return on assets to lead earnings persistence. It also highlighted the need for professional and official authorities to prioritize corporate governance and Egyptian firms financial reporting transparency. And in alignment with the comprehensive objectives of the Egyptian 2023 strategy for sustainable development.

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Appendix 1: EGX30 TR sample firms

N	ISIN	Company Name
1	EGS38191C010	Abou Kir Fertilizers
2	EGS42111C012	Alexandria Containers and goods
3	EGS380P1C010	Alexandria Mineral Oils Company
4	EGS30201C015	Delta Sugar
5	EGS37091C013	Eastern Company
6	EGS30511C011	Edita Food Industries S.A.E
7	EGS38081C013	Egyptian International Pharmaceuticals (EIPICO)
8	EGS3G0Z1C014	ELSWEDY ELECTRIC
9	EGS3C251C013	Ezz Steel
10	EGS673T1C012	GB Corp
11	EGS65591C017	Heliopolis Housing
12	EGS51201C012	Ibnsina Pharma
13	EGS30901C010	Juhayna Food Industries
14	EGS65571C019	Madinet Masr For Housing and Development
15	EGS39061C014	Misr Fertilizers Production Company - Mopco
16	EGS95001C011	Orascom Construction PLC
17	EGS70321C012	Orascom Development Egypt
18	EGS33041C012	Oriental Weavers
19	EGS380S1C017	Sidi Kerir Petrochemicals - SIDPEC
20	EGS691S1C011	T M G Holding
21	EGS48031C016	Telecom Egypt

Appendix 2: Sector Coding

<i>Sector</i>	<i>sector Code</i>
Basic Resources	1
Shipping and transportation services	2
Energy and support services	3
Food, Beverages and Tobacco	4
Health Care & Pharmaceuticals	5
Industrial Goods , Services and Automobiles	6
Real Estate	7
Contracting & Construction Engineering	8
Textile & Durables	9
IT , Media & Communication Services	10

Appendix 3: Firm Sector Coding

<i>N</i>	<i>Com</i>	<i>Sector</i>	<i>sector Code</i>
1	Abou Kir Fertilizers	Basic Resources	1
2	Alexandria Containers and goods	Shipping and transportation services	2
3	Alexandria Mineral Oils Company	Energy and support services	3
4	Delta Sugar	Food, Beverages and Tobacco	4
5	Eastern Company	Food, Beverages and Tobacco	4
6	Edita Food Industries S.A.E	Food, Beverages and Tobacco	4
7	Egyptian International Pharmaceuticals (EIPICO)	Health Care & Pharmaceuticals	5
8	ELSWEDY ELECTRIC	Industrial Goods , Services and Automobiles	6
9	Ezz Steel	Basic Resources	1
10	GB Corp	Industrial Goods , Services and Automobiles	6
11	Heliopolis Housing	Real Estate	7
12	Ibnsina Pharma	Health Care & Pharmaceuticals	5
13	Juhayna Food Industries	Food, Beverages and Tobacco	4
14	Madinet Masr For Housing and Development	Real Estate	7
15	Misr Fertilizers Production Company - Mopco	Basic Resources	1
16	Orascom Construction PLC	Contracting & Construction Engineering	8
17	Orascom Development Egypt	Real Estate	7
18	Oriental Weavers	Textile & Durables	9
19	Sidi Kerir Petrochemicals - SIDPEC	Basic Resources	1
20	T M G Holding	Real Estate	7
21	Telecom Egypt	IT , Media & Communication Services	10