

CAN AUDIT QUALITY PREDICT EARNINGS PERSISTENCE?

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ABSTRACT

Research on the impact of audit quality on earnings persistence is of interest to managers, investors, and researchers. However, the results have been inconsistent. Therefore, this study was undertaken to examine the link between audit quality and earnings persistence with audit firm size as a measure of audit quality. Quantitative analysis was adopted to analyse a sample of 228 listed firms in the Vietnamese stock market between 2014 and 2017. Findings suggested that audit quality has a positive effect on earnings persistence. This trend was also true for firm size and cash ratio, while debt ratio and firm age negatively impacted earnings persistence. The research contributes to current literature by proposing viable solutions for functional government agencies, audit companies, and enterprise managers in improving the quality of auditing and information disclosed.

Keywords: audit quality, earnings persistence, listed companies, Vietnam

INTRODUCTION

The current study was aimed at examining whether audit quality is associated with earnings persistence, a reflection of earnings quality. Due to the fact that auditing and the quality of earnings shown in the financial report both attract the attention of financial information users, studies on the relationship between them have been carried out in many countries with different economic conditions and regulatory environments. Although most studies have shown a positive correlation between

them, the impact of each proxy that measures audit quality on earnings persistence is still mixed. The current study is motivated by the gap in literature in relation to this topic in Vietnam. Additionally, research results in other emerging markets are difficult to apply in the Vietnamese context because of its different institutional characteristics. First, Vietnam has nascent stock exchanges associated with many problems related to the transparency of both financial and non-financial information (Quang, 2013). Second, most listed companies in Vietnam have poor corporate governance (International Finance Corporation, 2012; Quang, 2013). Third, the close relationship between auditors and board of directors may reduce the independence of the auditor (International Finance Corporation, 2012).

External audit plays a strong role in supporting transparent financial reporting (Asbaugh & Warfield, 2003). This external independent process is particularly essential to corporate governance and the oversight of listed companies (Francis, 2004) to protect the common interest of their shareholders (Phan et al., 2020). Audit quality is a joint probability of detecting and reporting any company breaches (DeAngelo, 1981). The quality of the audit process is essential for providing reliable and objective reports, allowing users of financial statements to make appropriate decisions.

Nevertheless, direct measures and evaluation of audit quality are complicated because the latter cannot be observed explicitly. Furthermore, the elements of audit procedures to produce the final results of the audit report are not disclosed by the audit firm. The lack of information makes it difficult for users to directly assess the quality of the audit (Pham et al., 2017). Therefore, various factors have been used to measure audit quality, such as audit firm size, audit tenure, audit fees, audit firm reputation, audit industry specialisation, and litigation acceptance rate. The current study used audit firm size as a proxy for audit quality because of a positive association between them, supported by many prior research works (Gul, 1989; Houghton et al., 2001; Choi et al., 2007; Rezaei & Shabani, 2014). According to DeAngelo (1981), the size of the audit firm represents its audit quality. Audit firm size is determined by total revenues, number of partners, number of professional staffs, and number of offices (Arens et al., 2014); of which the largest companies are currently Big4, which comprises PricewaterhouseCoopers (PwC), Deloitte Touche Tohmatsu (Deloitte), Ernst and Young (EY) and Klynveld Peat Marwick Goerdeler (KPMG). Riyanto (2007) empirical study pointed to a big distinction in audit quality between large (Big4 audit firms) and small audit firms (non-Big4 audit firms). Prior studies supported the belief that Big4 audit firms provide a higher audit quality than non-Big4 among listed companies (Kim et al., 2003; Choi & Doogar, 2005; Choi, Kim, Kim et al. 2010; Choi, Kim, Qiu et al. 2010). Big4 auditors are expected to provide higher audit quality than non-Big4 auditors

due to the following reasons: Big4 audit firms are less dependent on a specific client (Rezaei & Shabani, 2014), so they are less likely to be under pressure from clients to issue low-quality reports than smaller audit firms (Choi et al., 2010). Additionally, they have greater incentive to provide high quality services to protect their brand reputation (Rezaei & Shabani, 2014); Big4 audit firms have more technical capacity, larger resources, more experienced auditors and higher professional competence than smaller audit firms (Francis & Yu, 2009). They also have higher quality control system due to adaption of instructions, working papers and other technical resources from their international systems (Do et al., 2020).

The earnings reports are indicative of a firm's financial performance and they are very useful in making economic decisions (Dechow et al., 2010). Earnings quality refers to the ability of reported earnings to reflect the company's true earnings, as well as the usefulness of reported earnings to predict future earnings (Gissel et al., 2005). One of the measures of earnings attributes is earnings persistence. It has been defined as the durability and recurrence of earnings (Rajizadeh & Rajizadeh, 2013) and it determines the extent to which current profits can be maintained in the future (Mahmoud & Zohre, 2014). Prior studies have linked earnings quality in financial statements to earnings persistence (Li, 2008; Kang et al., 2012). Earnings persistence is an essential feature of earnings quality and enables financial report to provide useful information to investors for assessing future cash flows and earnings (Kang et al., 2012). Higher persistent earnings are associated with the ability to maintain the current earnings and higher earnings quality (Lipe, 1990). Firms with more sustainable earnings and cash flow streams have more earnings persistence that can be beneficial for equity valuation while those with problems are likely to have lower earnings quality and unsustainable earnings, which are reflected by lower earnings persistence. Problematic issues are those that auditors identify and then modify their opinions on, such as scope limitation, going concern ability, uncertainty, and disagreement on accounting applications. Firms with problematic issues are likely to have lower earnings quality and unsustainable earnings, which are reflected by lower earnings persistence (Vichitsarawong & Pornupatham, 2015). Earnings persistence, a measure of informativeness of earnings, is seen as an important feature of financial reporting integrity and firm value because it does not suffer from the potential measurement errors inherent in accrual models (Kang et al. 2012).

The current research contributes to empirical studies that have focused on the link between audit quality and earnings persistence in Vietnam. It is critical to analyse this relationship due to three main reasons. First, studies on audit quality in emerging markets are few, most are focused in developed countries, such as the United States and the European Union (EU) members (Vichitsarawong &

Pornupatham, 2015). Second, in Vietnam, the number of studies on earnings persistence is inadequate and this topic has not earned as much attention from researchers compared with earnings management. Therefore, the current study was necessary not only to justify this relationship but also to contribute to existing literature, especially in emerging markets, on the association between audit quality and earnings persistence. Finally, the results can be utilised by governance bodies, audit companies, enterprise managers and investors to assess the economic situations before making any investment or related decisions.

The current study utilised the instrumental variables (IV) model to solve the potential problems caused by deficient samples. A total of 228 firms listed in Ho Chi Minh City Stock Exchange and Ha Noi Stock Exchange from 2014 to 2017 were sampled and earnings persistence was measured using equations used by many previous studies. The audit quality was measured using a dummy variable receiving 1 if firms are audited by Big4 company and 0 otherwise.

Auditing Market and Regulatory Environment In Vietnam

Audit firms in Vietnam can be divided into two categories: Big4 and non-Big4 companies (Nonbig). The Big4 companies included PwC, Deloitte, Ernst & Young, and KPMG. Those not in the Big4 group are domestic audit firms along with audit firms that are part of an international network, such as Grant Thornton, RSM, and Crowe. The 2018 Performance Summary Report of the Ministry of Finance showed that Big4 companies held the majority of market share (50.41%), customers (8,610 out of 52,366), and personnel (28.93%) in the industry.

The legal environment for independent audit in Vietnam has both positive and negative aspects. On the positive side, the legal framework for independent audit is relatively complete, including the Law on Independent Audit 2011, Decree 17/2012/ND-CP detailing and guiding the implementation of a number of articles of the Law on Auditing, Circulars guiding the implementation of the Decree, Vietnamese Standard on Auditing (VSA), regulations on quality control of accounting and auditing services. Independent auditors in Vietnam are managed by Ministry of Finance and Vietnam Association of Certified Public Accountants (VACPA). However, according to Ngo and Le (2021), there are certain limitations in their practice. First, regulations aimed at assessing issues of control, transparency and operational quality of audit firms are still deficient, the criteria for assessing the quality of the audit, and the auditor's capacity have not been fully expanded. Second, although there is the Law on Independent Audit and the VSA system, there are still no specific documents guiding the application of these standards in

practice. Third, business risks for audit firms may include unfair competition and price reduction to below reasonable level.

Theoretical Framework and Hypothesis Development

In this research, agency and asymmetric information theories have been employed to analyse the impact of audit quality on earnings persistence.

According to the agency theory, the disagreement in interests between two parties including the agent (managers) and the principal (business owners) occurs for two reasons: conflict of purposes and information asymmetry. The agent retains superior information thereby, having the opportunity to use it at the expense of the principal. This incurs agency costs for the principal to monitor and control the agent's behaviour, which in turn will lower the firm's performance. The agency theory also recognises auditing as one of the main monitoring mechanisms to regulate conflicts of interest and cut agency costs. Further, the willingness of economic firms for selecting an independent audit firms will go up when agency conflicts increase (Fan & Wong, 2005). Anwer et al. (2008) posited that firms with large auditors have lower agency costs while. Luo et al. (2018) argued that firms with more transparent financial reports, that is, higher audit quality and internal control, experience lower agency costs. An independent actor can be contracted to inspect the information environment. In this case, auditing is one form of control to decrease the risk of the agent withholding substantial information from the shareholders (Beaver, 1989). Lowering agency costs means higher audit quality which in turn increases firm's performance and earnings persistence. The auditor also has a role in enhancing the application of accounting policies and in reporting problematic issues of a firm. These problematic issues are likely to reduce earnings quality, which should lower earnings persistence (Vichitsarawong & Pornupatham, 2015).

Asymmetric information theory refers to the problem of information asymmetry between the parties participating in a transaction, when one party has more information than other. In the stock market, investors are at a disadvantage than managers in accessing information. They possess limited access to sufficient information to make decisions. It has been reported that managers who possess more information than other stakeholders engage in greater beneficial behaviours (Jensen & Meckling, 1976). Therefore, the need for transparent disclosure of financial information is extremely important. A reduction in information asymmetry will increase the liquidity of a firm's securities (Lev, 1988) and reduce a firm's cost of capital (Easley & O'Hara, 2004; Diamond & Verrecchia, 1991). Auditing is one way to reduce information asymmetry and associated agency costs. Wallace

(2004) proposed the incentive for hiring auditors: signalling private information to the public through audit reports. An auditor acts as an external party to verify the information provided by management of its client and adopts professional scepticism, which requires him to consider that the information provided by the management may be misleading. In this regard, being the final product of audit process, audit reports allow users to access true and fair information and enable disclosure of the information that must be revealed, but that has not been revealed yet. As audit quality and the credibility of a firm's financial disclosures increase, earnings announcements will resolve uncertainty about company value and reduce the level of information asymmetry. Higher quality audit is more likely to detect and avoid accounting errors and misstatements and it should reduce information asymmetry compared with lower quality audit (Almutairi et al., 2009). It can be argued that the mechanisms of external governance operate externally to firm and expose firm management to disciplining forces that are outside the firm so that managerial incentives to distort financial reports should decrease (Leuze et al., 2003). This means that independent auditors as external parties are whom stakeholders can rely on in maintaining the information integrity of financial reports, facilitating the assessment of the objective situation of the firm, increasing fund-raising possibilities, and finally increasing firm's earnings persistence, a reflection of earnings quality.

From the theoretical review, audited financial statements are a monitoring mechanism to provide assurance for financial information users. Independent audit is one form of control used by the principal in agency theory. It plays an important role in maintaining integrity of financial reports to reduce asymmetric information. Auditors as external parties may be relied on in neutralising conflicts of interests and reducing information asymmetry. Collectively, both background theories used imply that audit quality has a positive impact on corporate earnings persistence because companies may obtain economic and control benefits from auditing activities.

The impact of audit quality on earnings persistence is important but under-researched, especially in Vietnam, and current empirical studies provide mixed findings.

Eliwa et al. (2021) examined the relationship between earnings quality and analysts' information environment as measured by forecasts dispersion, and forecasts accuracy by analysts. The sample included all non-financial listed firms in the 15 EU member states. They found that higher earnings quality leads to more analysts following, less dispersion of forecasts, and more accurate forecasts. Furthermore, the strength of this relationship is positively associated with

both International Financial Reporting Standards (IFRS) and the strength of enforcement regimes in EU countries.

Adegbie et al. (2020) focused on the impact of audit quality on earnings persistence in manufacturing companies listed on the Nigerian Stock Exchange between 2008 and 2017. They found that audit firm size, audit tenure and audit committee expertise have a positive and insignificant effect while sector specialisation has a significant negative effect while audit firm independence has a negative and insignificant effect on earnings persistence. Internal factors, such as firm's operating time and size, have a significant positive and negative impact on earnings persistence respectively. The finding showed that audit firm size, audit tenure, sector specialisation, audit firm independence, audit committee expertise after controlling for size, and the company's operating time, induce stability in earnings.

Martins and Barros (2020) analysed the association between firm-level informativeness and accounting quality based on the quality of the country-level information environment. They sampled over 15,000 publicly traded firms from 21 countries included in the MSCI Emerging Markets Index for the period 2000–2016. Earnings persistence and earnings management are used as proxies for accounting quality. Their study found that in emerging markets with weaker information environments, the positive association between firm-level informativeness and accounting quality is more pronounced, suggesting that greater firm-level informativeness may partially compensate for weaker country-level institutions.

Saleh et al. (2020) examined the importance of earnings quality as a determinant of companies' performance in Jordan. The study showed the importance of positive earnings quality that eventually influences the companies' performance. Therefore, a higher control level on the managers' behaviour and its outcome will have an effect on earnings quality, and thus, supporting the company's performance. Moreover, high relevance of accounting information will improve earnings quality as reported by Machdar et al. (2017). As a result, earnings quality with the interaction factors of the company's environment will improve its performance.

Dang et al. (2020), Aguguom et al. (2019), and Aguguom and Salawu (2018) documented that earnings quality is highly positively associated with companies' book value, and this refers to the relevance of information disclosure which enhances earnings quality, as well as credibility of reported book value. Moreover, higher earnings quality may reduce information uncertainty and asymmetry (Beaupain & Joliet, 2011; Qi et al., 2010; Dechow & Dichev, 2002).

Salehi (2020) analysed the relationship between the companies' political connections and audit fees of firms listed on the Tehran Stock Exchange during 2011–2019. He argued that companies with political relationships face higher representation costs because they suffer from high agency conflict and poor corporate governance. Therefore, capital markets and auditing companies consider these companies at higher risk. Thus, institutional investors of these firms demand for higher audit quality, which leads to a higher fee and increase their monitoring. As a result, the selection of larger or smaller audit firms is very important for the financial information users of companies. Therefore, identifying the factors that are relevant to this choice can improve the quality of the reporting, and thus, pave the way for sustainable development.

Salehi et al. (2020) examined the potential impact of readability of financial statement notes on the auditor's report lag, audit fees and going concern opinion (GCO), using the population of all listed firms on Tehran Stock Exchange between 2012 and 2017 as their sample. The results showed a significant and positive relationship between audit report lags and readability of financial statements. Audit fees are also positively associated with readability index, meaning that auditors are less likely to charge greater audit fees on their clients since they are going to exert less effort in low-readable reports. Their overall findings indicated that readability is negatively related with issuing GCO, denoting hard-to-read statements is considered as a risk factor by auditors.

Sumiadji et al. (2019) examined the influence of audit quality on earnings quality. Data was extracted from annual reports of 116 manufacturing companies listed on the Indonesian Stock Exchange between 2011 and 2014. The factors that represent audit quality are: audit firm size, audit tenure, and audit expertise. Earnings quality is shaped by attributes, such as cumulative quality, persistence, predictability, and stability. Their analysis showed that persistence and predictability represent earnings quality. Research results revealed that audit firm size and audit tenure have an impact on earnings quality, while audit specialisation does not.

Di Fabio (2019) studied the association of earnings quality and external governance on banks in the European context. The author showed that strong external governance is associated with higher banks' earnings quality, and specifically that banks in countries characterised by strong supervisory power, strong supervisory independence, and higher stringency of capital regulation show higher earnings persistence and higher predictability of future cash flows, compared with banks under weaker supervisory regimes.

Abernathy et al. (2018) examined the relationship between residual audit fees and the ability to predict future earnings, that is, earnings persistence show the negative association between the two factors. Results of their study suggested that higher residual audit fees are associated with a lower quality information environment, consistent with the finding of Hribar et al. (2014), who argued that while auditors increase audit effort when they perceive the client to be at high risk, such effort may improve accounting quality at the margin but does not necessarily transform low accounting quality to high accounting quality.

Vichitsarawong and Pornupatham (2015) analysed the association between audit opinion and earnings persistence of listed companies in Thailand between 2004 and 2008. They concluded that firms receiving modified opinions have lower earnings persistence than those receiving unqualified opinions, and the degree of earnings persistence varies based on types of modifications. Content analysis revealed that there is information in certain types of modified opinions with respect to earnings quality. Their study was limited by the fact that although audit opinion offers a more direct and superior approach, it is still an indirect-outcome-based measure of audit quality.

Kheirollahi et al. (2014) studied the relationship between audit quality and earnings quality of companies listed on the Tehran stock exchange between 2008 and 2010. Audit quality was determined based on the size, operating time and experience of the audit firm, their reputation and the quality of their earnings as measured by the persistence of earnings, and the level of accumulation. Standard questionnaires were used to collect data. The results indicated that audit quality can be influenced by the quality of earnings. The relationship between audit quality and earnings quality is a significant and positive one.

Hussainey (2009) examined the impact of audit quality, measured by reports audited by Big4 firms, on investors' ability to predict future earnings. Data was obtained from 4,417 companies operating in UK between 1996 and 2002. The study concluded that investors can predict future earnings better when the financial statements are audited by Big4. In particular, the study showed that Big4 companies have not lost their audit quality advantage, and the financial statements audited by these four companies are said to be of higher quality compared with other audit companies.

Phan et al. (2020) conducted an empirical study on the influence of audit quality on the performance of 228 listed companies in Hanoi Stock Exchange (HNX). The results showed that audit quality has a positive impact on financial performance (profitability and growth rate) of these companies.

In summary, companies may enjoy economic and control benefits from auditing activities. Audit plays an important role in decreasing information asymmetry and moral hazards by providing certainty of information to stakeholders, and hence, the financial reports that are prepared by managers as agents can be relied upon (Sumiadji et al., 2019). An audit is viewed by investors as a means of improving the quality of financial information (Wallace, 2004) as persistence depends on both the firm's fundamental performance as well as the accounting measurement system. Therefore, audits can increase earnings quality and earnings persistence of a company. Hence, the following hypothesis was formulated:

H1: Audit quality is positively related to earnings persistence.

RESEARCH DESIGN

The current study's dependent variable is (earnings persistence – PERSISTENCE), the independent variable (audit size – BIG4), and control variables (firm size [SIZE], debt ratio [DEBT], cash ratio [CASH], fixed assets ratio [PPE] and firm age [AGE]). The formula to calculate these variables and the expected relationship between explanatory variables and earnings persistence based on different theories are discussed as follows.

Measuring Earnings Persistence

In this study, we use the dependent variable of earnings persistence (PERSISTENCE) to represent the level of earnings persistence of enterprises in the research period from 2014 to 2017. According to Delvira and Nelvirita (2013), the sustainability of earnings can be seen from the overall financial statements and measured based on the components of the financial statements. Deng et al. (2017) in a study on the relationship between dividends and earnings quality in China, proposed a way to measure the level of earnings persistence of each company, in a particular research period, by the coefficient β_1 , as follows:

$$Earnings_{i,t+1} = \alpha + \beta_1 * Earnings_{i,t} + \varepsilon$$

In the above equation, $Earnings_{i,t+1}$ and $Earnings_{i,t}$ are the earnings per share (EPS) of the firm in years $t+1$ and t respectively, times with stock prices in year $t+1$ and t . Delvira and Nelvirita (2013), Ranasinghe et al. (2020), Adegbe et al. (2020), Li (2019), and Ticoalu (2020) also proposed a similar measurement.

Measuring Audit Quality

Audit quality is expressed through the audit firm size variable, a dummy, in the current research model.

According to DeAngelo (1981), Healy and Wahlen (1999), Big4 audit firms are able to provide higher quality audit services thanks to numerous investments in technology. According to Ticoalu (2020), audit quality is measured through the use of Big4 auditors, who are recognised for their professionalism and quality standards. Francis and Yu (2009) argued that Big4 audit firms have better experts than other firms. They show that audits performed by larger auditing firms are more likely to detect material misstatements in the company's financial statements, resulting in higher audit quality. Many previous studies, namely DeAngelo (1981), Sumiadji et al. (2019), Pham et al. (2017), Adegbie et al. (2020), Ticoalu (2020), have suggested ways to measure the audit firm through the dummy variable Big4, receiving two values of 0 or 1. Specifically:

- Equal 1 when the business is audited by Big4 audit firm, or
- Equal 0 when the business is audited by an audit firm that is not Big4 (Nonbig).

Adegbie et al. (2020) concluded that there is no significant difference between firms audited by Big4 companies and firms audited by smaller firm (Nonbig) in the context of corporate earnings persistence. Sumiadji et al. (2019) and Vichitsarawong and Pornupatham (2015) on the other hand argued that audit firm size has a significant positive impact on sustainability of corporate earnings.

The current study sample represent the Vietnamese market. The total number of enterprises listed on Ho Chi Minh Stock Exchange (HOSE) and HNX is 735. However, all businesses in the financial and insurance sectors (more than 100 enterprises) were eliminated from the sample because of their different operating methods and the financial reporting system. Firms that are not well-informed about the research concepts were also excluded to give a final sample size of 228. These companies were selected based on their full financial statements from 2014 to 2017.

The following is the formula for the current model that assesses the impact of audit quality on earnings persistence:

$$\text{PERSISTENCE}_{i,t} = \beta_0 + \beta_1 * \text{BIG4}_{i,t} + \beta_2 * \text{SIZE}_{i,t} + \beta_3 * \text{DEBT}_{i,t} + \beta_4 * \text{PPE}_{i,t} + \beta_5 * \text{CASH}_{i,t} + \beta_6 * \text{AGE}_{i,t} + \varepsilon_{i,t}$$

Where: PERSISTENCE is the measure of earnings persistence. BIG4 is the measure of audit size. Control variables include firm size (SIZE), debt ratio (DEBT), cash ratio (CASH), fixed assets ratio (PPE), and firm age (AGE).

Control Variables

Firm size (SIZE) was calculated as the natural logarithm of the book value of total assets (Fortin & Pittman, 2007; Iana et al., 2013; Vichitsarawong & Pornupatham, 2015; Adegbe et al., 2020). Lys and Watts (1994), and Shu (2000) concluded that large firms are more susceptible to earnings volatility risk than smaller ones. Therefore, earnings persistence of the former firms will be lower comparatively. In contrast, Watts and Zimmerman (1978) suggested that larger firms will choose less risky investments to avoid potential government interference associated with higher and more sustainable returns. However, Vichitsarawong and Pornupatham (2015), and Adegbe et al. (2020) argued that larger companies tend to achieve greater earnings persistence. In line with these studies, we expect a positive association with this variable.

SIZE = The natural logarithm of the book value of total assets at year-end

Debt ratio (DEBT) is calculated as total debt divided by total assets. Financial leverage, or debt ratio, was used as a control variable because firms with high debt ratio are more likely to face financial problems and risk of bankruptcy (Ohlson, 1980), leading to a poor level of earnings persistence. Debt ratio was also used in Vichitsarawong and Pornupatham (2015) with the results being negatively correlated with earnings persistence. A negative association was expected with this variable, consistent with these earlier authors.

DEBT = Total debt/Total assets

Cash ration (CASH) is calculated as total cash and cash equivalent divided by total assets. A large reserve of cash and cash equivalents, a highly liquid asset, can well support the business in its operational activities, such as procurement of raw materials, machinery and equipment, payments to suppliers and employees. Cash and cash equivalents also support the business when the financial situation becomes difficult, the business does not have to sell its other assets and can still maintain operations. Therefore, a company can obtain economic benefits from high cash ratio. The study expected association with this variable.

CASH = Total cash and cash equivalent/Total assets

Fixed assets ratio (PPE) is calculated as net fixed assets divided by total assets. Fixed assets are extremely important for businesses in their production and operational activities. With a large and efficient use of fixed assets, companies can generate high and stable earnings. Therefore, the study expected a positive relationship between earnings persistence and fixed assets.

$$\text{PPE} = \text{Net fixed assets} / \text{Total assets}$$

Firm age (AGE) is calculated as the natural logarithm of the number of years from the date of incorporation to the year covered by the study (Salehi et al., 2020). It has been used as a control variable in determining the relationship between audit quality and earnings persistence in Adegbe et al. (2020). The result showed that the age of companies has an inverse effect on earnings persistence, which means the longer the number of years of establishment, the lower the level of earnings persistence. The current study expected a negative association with this variable.

$$\text{AGE} = \text{Natural logarithm (Current year - The year in which the company was founded)}$$

Estimation Strategy

Due to the small sample size, the results may be inaccurate and biased. This is equivalent to the endogeneity caused by the independent variable (BIG4). In order to overcome the problem, instrumental variables were added: lag of firm size (l.size), lag of debt ratio (l.debt), lag of cash ratio (l.cash), lag of fixed assets ratio (l.ppe), and the businesses under consideration (i.firm1) to explain the independent variable BIG4. The number of instrumental variables used was larger than the number of endogenous variables.

EMPIRICAL RESULTS AND DISCUSSION

Descriptive Statistics

All the research data were retrieved from Thomson Reuters; and banks, insurance companies, and financial companies were eliminated from the research sample due to the different nature of their business and regulations compared with firms of other industries. After the elimination of missing or incomplete data, the final sample size was 228 companies covering the period between 2014 and 2017, totalling 552 observations.

According to the results of the variables shown in Table 1, the level of persistence of earnings with maximum and minimum value was 2.426 and -4.169, respectively. The difference is not too large between maximum and minimum value of the SIZE variable, indicating that the firms in the sample are not much different in size. DEBT, PPE, CASH, and AGE variables have large fluctuation amplitude. This shows that the difference in operating characteristics, financial structure and operating time of the selected enterprises is relatively large. Therefore, the research sample is both excellent and diversified in business characteristics, reflecting the Vietnamese market, accounting for 70% of the nation’s market capitalisation.

Table 1
Descriptive statistics of variables

Variable	Obs.	Mean	Std. dev.	Min	Max
PERSISTENCE	552	0.244	0.450	-4.169	2.426
BIG4	552	0.230	0.421	0.000	1.000
SIZE	552	27.127	1.493	23.441	31.027
DEBT	552	0.530	0.209	0.040	0.944
PPE	552	0.277	0.235	0.002	0.953
CASH	552	0.097	0.096	0.0002	0.695
AGE	552	2.753	0.446	1.609	4.060

RESULTS AND DISCUSSION

Table 2 presents the Pearson’s correlation matrix of variables. The Pearson’s correlation between independent variables should not exceed 0.5 to ascertain that there is no serious multicollinearity problem among the variables.

Table 2
Pearson’s correlation coefficient matrix

	PERSISTENCE	BIG4	SIZE	DEBT	PPE	CASH	AGE
PERSISTENCE	1.000						
BIG4	0.020	1.000					
SIZE	-0.036	0.432	1.000				
DEBT	-0.146	0.070	0.366	1.000			
PPE	-0.034	0.001	0.115	-0.108	1.000		
CASH	0.019	0.134	-0.083	-0.257	-0.223	1.000	
AGE	-0.052	0.032	0.036	0.011	-0.123	0.105	1.000

Table 3
Results of regression analysis of instrumental variables

Variables	Coefficient	Robust Std. error	z	p-value	Conf. interval	
BIG4	0.062***	0.009	6.76	0.000	0.044	0.080
SIZE	0.012***	0.004	2.83	0.005	0.004	0.021
DEBT	-0.564***	0.019	-29.53	0.000	-0.601	-0.526
PPE	-0.039	0.033	-1.18	0.236	-0.104	0.026
CASH	-0.261***	0.055	-4.74	0.000	-0.369	-0.153
AGE	0.033**	0.015	2.25	0.024	0.004	0.061
_cons	0.114	0.129	0.89	0.376	-0.139	0.367
GMM C test	Chi ² (1) = 0.007; p-value = 0.9303					
Hansen test	Chi ² (1) = 201.72; p-value = 0.0981					

Note: *, **, *** denote the level of significance of 10%, 5%, and 1%, respectively

The instrumental variables model were used to perform tests to consider their relevance and reliability. First, the variable BIG4 was tested to see if it was exogenous or not in line. Hypothesis H0: The variable BIG4 is exogenous. The GMM C test had p -value = 0.9303. Since the p -value was not statistically significant, H0 was accepted and that BIG4 was an exogenous variable. The fact that BIG4 is an exogenous variable does not affect the choice of using instrumental variables.

Instrumental variables are valid if they have a significant correlation with the variable they explain and not with the random error fraction. Table 4 shows the statistical indicators that help evaluate the explanatory level of the instrumental variables.

Table 4
The explanatory level of the instrumental variables test

Variable	R-sq.	Adjusted R-sq.	Partial R-sq.	Robust F(94, 131)	Prob > F
BIG4	0.9652	0.9166	0.9564	12994.8	0.0000

The indices R^2 (R-sq.), adjusted R^2 (adjusted R-sq.) and partial R^2 (partial R-sq.) all show large values. F-test with p -value (Prob > F) equal to 0.0000 had strong statistical significance which meant the instrumental variables used are strong enough and the instrumental regression model will be less biased when they have a large correlation with the variable they explain.

A test on the overidentification of the instrumental variables was conducted. In addition to being correlated with the variable they explain, instrumental variables are only valid when they are not correlated with the random error portion of the model. Hansen's J test has p -value = 0.0981 at 10% significance level. Thus, the test for overidentification was valid.

It can be concluded that the use of instrumental variables can solve the problem of biased and inaccurate results, thus providing the regression results with high reliability and relevance for statistical interpretation purposes.

The results of the IV regression model on Stata 14 software are summarised in Table 3. With $\text{Prob} > \text{Chi}^2$ equal to $0.000 < 0.05$ (95% confidence level), the regression model has statistical significance. All factors have an impact on the level of earnings persistence of enterprises. Furthermore, many factors in the model have a statistically significant effect. In addition, the p -values of most of the independent variables were less than 0.05 (95% confidence), except for the variable PPE which at 0.236 was greater than 0.05. Therefore, this variable has no effect on the sustainability of the firm's earnings.

The constant value of 0.114 of the regression model shows that when the variables Big4, firm size, debt ratio, cash ratio and firm age are at 0, then PERSISTENCE is at 11.43%. The variable Size of audit firm has a p -value = 0.000 and has a coefficient of regression > 0 , this proves that the size of the audit firm has a positive impact on the sustainability of the firm's earnings. Additionally, the marginal effect of 0.062 indicates that while other factors are constant, the enterprise audited by the Big4 company has a stable income level 6.2% higher than those that chose the Nonbig company. The results paralleled Sumiadji et al. (2019) and Vichitsarawong and Pornupatham (2015). This shows that the higher the quality of audit, reflected in the size of the audit firm, the greater the earnings persistence of the enterprise. Therefore, listed companies should choose an audit company that provides high quality audit services to improve the quality of information of financial statements, thereby contributing to stable earnings and operating results.

The remaining control variables, except for fixed asset ratio, all have high statistical significance, showing strong statistical evidence in the model. The variables of SIZE, DEBT, and CASH have a significance level of 1% and the AGE has a significance level of 5%. Controlling factors on firm size and firm age have a positive impact on earnings persistence. In contrast, factors such as debt ratio and cash ratio have a negative impact on earnings persistence. The results encourage enterprises to control the factors belonging to the characteristics of their business activities in order to improve the level of persistence of the company's earnings.

CONCLUSION

The study in sum, has provided empirical evidence in Vietnam – a developing country – on the impact of audit quality, focusing on audit firm size, on the persistence of corporate earnings. A total of 228 listed enterprises on the Vietnam stock market were surveyed between 2014 and 2017. The study hypothesised that audit quality has a positive effect on earnings persistence and hence, it was concluded that audit quality is positively correlated with firm's earnings persistence. In addition, factors pertaining to the characteristics of enterprises also have a significant impact on earnings persistence: firm size and cash ratio have a positive effect while debt ratio and firm age has a negative impact on the enterprise's earnings.

The quality of both income and information disclosed in the financial statements is determined by subjective and objective factors. The study makes the following policy suggestions.

For The Governing Bodies

Improving the legal system on accounting and auditing is a must. Additionally, these bodies must assess the implementation of Law on Independent Auditing, VSA standards, resolve existing limitations, and propose alternative standards in the direction of international practice, suitable to Vietnamese conditions. In so far as the financial and securities markets are concerned, regulators need to come up with updated principles and regulations for the publication of financial statements in accordance with international financial reporting standards for listed companies, and companies with public interests.

Second, strengthen inspection and supervision of legal compliance for compliance with legal regulations and professional standards of enterprises providing independent audit services. They must effectively implement the publicity and transparency of financial statements, economic and financial information of agencies, units, enterprises, and economic organisations.

For Manager of Businesses

First, improving the quality of information on financial statements through corporate governance, making decisions on selecting an appropriate auditing company for the purpose of improving the quality of financial statements is vital. The board of directors should have guidelines in developing procedures to prevent frauds and errors in the preparation of financial statements. Developing a full disclosure regime about the company's business activities, especially financial information,

is necessary in order to avoid asymmetric information to help non-executive board members have full information when making decisions.

Second, business managers must have a strategy to effectively exploit the resources of their business to achieve their profit and sustainable development goals .

For Audit Firms

First, they must complete the policy to control the quality of services provided. Audit companies need to pay attention to build an effective quality control process so that the audit work is directed, guided, and supervised at all stages. Developing appropriate policies and plans is key to ensuring sufficient human resources and quality resources for better audit quality and financial statements for clients. This can be done through scale development, investment in human resources, technical equipment, and software information system.

Second, it is important to train high-quality auditors. Auditor training should be coordinated with professional organisations to have an appropriate training programme associated with international standards.

Third, build a professional environment and comply with standards of professional ethics. Audit firms need to build a professional working environment and style, uphold the implementation of ethical standards by auditors, and resolutely eliminate unfair competition and reduce audit fees, leading to unsatisfactory audit quality.

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