

Determinants of Auditor Choice in Non-Financial Listed Firms on the Vietnamese Stock Market

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ABSTRACT

Auditing plays an important role in maintaining and issuing high-quality financial statements. This article investigates the factors that can affect auditor choice in developing countries. The authors utilize STATA to test Binary Logistic on a sample of Vietnamese-listed firms data during the period between 2014 and 2017. These studies have examined the characteristics of the firm itself or the client's characteristics, prompting the process of selecting an auditor in the same regulatory environment. The results present that there is a positive relationship between firm size, firm growth, and auditor choice. While financial leverage has a negative relationship with the selection of audit firms.

KEYWORDS

Auditor choice, Financial Leverage, Firm Complexity, Firm Growth, Firm Size, Firms Age, Return on Total Assets, Vietnam

INTRODUCTION

The Vietnamese State encourages the development of a multi-sector economy, which promotes the equalization of state-owned enterprises (SOEs). Vietnam developed stock market to meet the opening of international integration. State Securities Commission of Vietnam requires the financial audit to transparent financial statement information. Therefore, external auditing is a part of the economy, which is both a legal requirement and an objective indispensable.

Audits play an important role in maintaining and issuing high-quality financial statements. The benefits of requiring auditing firms bring about many aspects according to Wallace (1980); Knechel (2002) and these values may vary for each enterprise. Wallace (1980) points out that the auditor's assessment of internal processes can help tighten management practices and strengthen compliance with regulatory constraints help improvement in the effectiveness and efficiency of the business operations. DeFond (1992), a study on the relationship between agency costs and switching auditors in the US, the results provide that larger listed firms are likely to choose Big Eight with high audit fee. Firth and Smith (1992), have found that new operating companies hire large audit firms Big Eight. Broye and Weill (2008) argue that firms listed on stock exchanges choose Big4 audit firms because they have more experience in complex business operations. Moreover, the audit firms of Big4 have large international networks in the market. Butler, Leone, & Willenborg (2004) found that customer of Big Five have a higher frequency of obtaining an unqualified opinion.

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Studies on selection of audit firms were carried out in several countries, Australia New Zealand and the United Kingdom, Qatar, Taiwan (Firth and Smith, 1992; Mardini, Tahat, 2017; Gerged, Mahamat, & Elmghaamez, 2020; Kao, Shiue, & Tseng, 2013). In Vietnam, according to Hoang Thi Hong Van, (2018), do research to identify factors affecting the decision to choose an audit firm in Vietnam. In detail, the study selected 98 enterprises that have a high value of inventory in the total assets in Hanoi and Ho Chi Minh City to send the survey. These firms have small and medium-sized enterprises which have an asset value of less than 100 billion VND according to Decree 56/2009/ND-CP and TT16/2013/TT-BTC, that account for 50% of the sample. The results show that unlisted companies tends to choose Non-Big because of the low audit fees.

There are many arguments when researchers do study which related auditor choice because of inconsistency in the results of these studies. For example, according to Mayhew and Wilkins (2003), Almutairi et al. (2013), the factor return on total assets (ROA) positively affects auditor choice. However, according to Citron and Manalis (2000), there is no relationship between return on total assets and the choice of audit firms. Meanwhile, following Hoang Thi Hong Van (2018), the ROA variable has a negative effect on the selection of audit firms. In addition, according to Almutairi et al. (2013), the ROA variable is not statistically significant. Firm size positively affects audit selection as well as audit quality (Knechel et al., 2008; Broye and Weill, 2008). However, according to Chow and Rice (1982), this relationship has a negative effect. In addition, Hoang Thi Hong Van (2018) has shown that the firm size is not statistically significant. The degree of firms operational complexity positively affects the choice of audit as well as the quality of the audit (Revier et al., 2010, Hay and Davis, 2004, Knechel et al., 2008, Hay and et al., 2006). In contrast to the above studies, Hoang Thi Hong Van (2018), The degree of firms operational complexity has a negative impact on the choice of audit firms.

According to Corten, Steijvers, and Lybaert (2018), Habib, Wu, Bhuiyan, and Sun (2019), national institutional and information asymmetry has been considered when choosing auditing firms. From the limit of prior research, this study tests the way to choose audit firms on the listed firms on the Vietnam stock exchange. This study helps to contribute to the literature studying auditor choice in emerging economies, as well as show some implications on the Vietnam market.

The remainder of the paper is divided into four sections: The next section introduces the literature review, and the third section outlines the methodology. In section 4, this study presents the results, and the fifth section will wrap up the paper with some implications help for users.

LITERATURE REVIEW

Following Spence and Zeckhauser, (1971); Ross, (1973); Jensen and Meckling, (1976) investigate that agency theory refers to conflicts between owners and agents that lead to agency costs. Agents do not always make decisions in the best interests of the shareholders (Padilla, 2000). As share ownership fragments, direct control by shareholders becomes more expensive, as does reliance on audits as a governance mechanism to mitigate agency problems. According to Davis et al., (1997) DeFond (1992), Treacy and Carey (2000) agency theory is used to explain the selection of auditors. Creditors are particularly interested in transferring assets to shareholders (Treacy and Carey, 2000). The need for quality audits is multifaceted and is more dependent on the cost of capital argument. (Knechel, 2002; Wallace, 1980). Following Revier et al. (2010) explained that firms with higher profits would have a strong incentive to hide information internally. Therefore, firms were motivated to use low-quality audit services to conceal their information internally. According to Berger and Hann (2007), managers tend to use low-quality audits to hide details about the company's loss-making activities. According to Matonti, Tucker, and Tommasetti (2016), Ghafran and O'Sullivan (2017) board independence has a positive correlation with the appointment of high-quality auditors. Alfraih (2017) show that the more independent board of directors, the more selection Big Four when considering the audit firms aim to reduce agency cost. Habib et al., (2019) literature review related agency theory to select audit firms.

Information asymmetry theory comes from one side having more information, the other side having less information, this information asymmetry leads to difficulty when making decision by stakeholders (Akerlof, 1970 ; Spence, 1973). Creditors tend to choose high quality auditing firms, to avoid information asymmetry when information is not disclosed on financial statements (Chow, 1982; Hay & Davis, 2004; Knechel, Niemi, & Sundgren, 2008; Khasharmeh, 2015; El Ghoul, Guedhami, Pittman, & Rizeanu, 2016; Momodu, Joshua, & Nma, 2018). Developing businesses tend low asymmetric information, therefore, customers of big audit firms use low information asymmetry (Almutairi et al., 2009). According to Wallace, (1980); Fang, Zhang, Zhao (2017) businesses choose external audit as a more assurance of the quality of information they receive.

Following DeFond and Jiambalvo (1994); Mansi et al (2004); Mayhew and Pike (2004); Hay et al (2006); Knechel et al (2008); Lennox and Pittman (2011); Hoang Thi Hong Van (2018) showed that big firms tend to hire big audit firms, and financial leverage increases according to firms size. Ashton, Graul & Newton (1989) have argued that an audit firm can provide several services that are internally beneficial to the customer such as the process of improving the effectiveness and efficiency of the customer, enhance compliance with laws and regulations or reduce internal information asymmetry. According to Simunic and Stein (1987); Hay and Davis (2004); Hay et al (2006); Knechel et al (2008); Revier et al (2010); Hoang Thi Hong Van (2018) shown that the benefits of an audit firm may arise due to the different levels of complexity within an organization. However, Setiyono et al. (2013) pointed out that the uptime of enterprises has a significant influence and has a negative relationship to the audit quality. Blouin, Grein, Rountree (2007) summarized data of firms listed in the US and showed that business uptime is not related to the cost of conversion in audit. Moreover, Almutairi et al. (2013) also find that the speed of business development has a positive relationship with audit firms.

HYPOTHESIS DEVELOPMENT AND METHODOLOGY

Hypothesis

Warren (1975), examining the auditing standards of Big Eight and non-Big, the results shows that there is a significant influence between the industry group, the firm's size of the client's business, and the high-quality audit. Warren (1980) also found that the identification of the auditor has a significant effect on the qualified Opinion. However, we do not investigate which auditors are more likely to express such an opinion. Following Chow and Rice (1982) investigated the effect of a partially qualified opinion on audit firm transformation. Research results from randomly selected samples have shown that customers are more likely to convert auditor after receiving a qualified opinion. Following the previous studies, Knechel et al. (2008) analyzed the audit firm options of 2,333 mostly small and medium-sized enterprises in Finland. Finland requires almost all commercial enterprises to have financial statements auditing. But, Finland allows the smallest firms to select one of four types of auditing firms: first-tier international firms, first-tier national firms, second-tier local auditors and non-certified auditors. The results a connection between chose audit firms and the firms size. Revier et al. (2010) shown that when the firm's size increases, the managers hard to control the business. In case, firms expand their relationships with external stakeholders, the third-party tend to add supervision because of information asymmetry. The good auditor selection help firms to balance internal information, improve efficiency in businesses and reduce differences in the ranks of businesses. Thus, the firm size is expected to have a positive effect on the ability to select an audit firm (Chow and Rice, 1982; DeFond, 1992; Myers et al., 2003; Chaney et al., 2004; Knechel et al., 2008; Broye and Weill, 2008; Nguyen Thi Hong Van, 2018). Therefore, our first hypothesis is as follows:

Hypothesis H1: The choice of audit firms is affected by firm size.

For example assets, business activities, finance, or complexity of transactions. Moreover, other researchers also agree that the more complex a customer unit is, the more difficult it is in auditing and the audit will take more time (Hackenbrack and Knechel, 1997). Besides, the number of sales transactions expressing the complexity in the operation of a business, measured by the ratio of Receivables and inventories, (Stice (1991) and Hay et al. (2006). According to Knechel et al. (2008), Stice (1991), Hay and Davis (2004), Knechel and Wong (2006), there is a correlation between a firm's complexity and the amount of transactions it conducts and completes. Knechel et al. (2004) used dummy variable "Group" = 1 when the enterprise owned subsidiaries and vice versa. Barton (2005) points out that increasing issue in subsidiaries seem to be the cause of the corporation's weaker management. Specifically, Hay et al. (2006) argued that a measure of the complexity of a customer unit with a positive and significant relationship (81%), measured through the number of customers with subsidiaries. According to Knechel et al. (2008), the amount of transactions made in a corporation is related to the operational complexity of the company. According to Revier et al. (2010), the previous study investigates the determinants of audit firm choice. Enterprise manager chooses audit firms to help them control agency cost which increase with the level of growth and complexity of businesses. According to Almutairi et al. (2013), there is a positive connection between organizational ownership and the audit industry. Therefore, they assume that there is a connection between the high-quality audit firm and the level of complexity of business. Following Revier et al., (2010) Hoang Thi Hong Van, (2018) it is expected that firms' operational complexity has a positive effect on the auditor choice. Therefore, our second hypothesis is established as follows:

Hypothesis H2: The degree of firms operational complexity has a positive effect on the auditor choice.

Creditors may exert managerial pressure by employing specialized auditing firms in the industry to ensure their interests (Shleifer and Vishny, 1997). Besides, Gilson (1990) found that US banks were very active in providing policies to companies facing financial difficulties. Companies with financial leverage are more likely to hire a highly specialized audit firm than there is less expertise in the market. Companies tend to switch to higher quality audit firms as their financial leverage increases. Specifically, according to the study DeFond et al. (2000) examined the audit fees of large audit firms (Big Six) compared with small audit firms (not Big Six) for 248 companies in Hong Kong was listed and found that customers hired Big Six auditing firms because of a higher debt ratio

According to Mansi et al. (2004), Mayhew & Pike (2004), Lennox and Pittman (2011) a high-quality audit firm enables high credit to borrowers and minimize information risk their lending. Because they improve the credibility and reliability of disclosing accounting information.

According to Hay et al. (2006), 39 studies measure financial leverage by debt divide total assets and 16 studies measures by an acid -test ratio. Specifically, half of the previous studies confirm the positive relationship between audit cost and leverage ratio, and the negative relationship between audit cost and acid -test ratio. According to Broye and Weill (2008), previous research considers financial leverage as a variable in the auditing firm's screening process differs significantly in European contexts. The study looked into this relationship in ten European countries and discovered evidence that different types of leverage are related to different levels of liability for auditors. So, there is a negative relationship between financial leverage and audit firm choice. Knechel et al. (2008) measure the debt ratio of enterprises by the ratio of total liabilities to total assets. Moreover, several other studies explore the effect of financial leverage depending on the option of an auditing company using various concepts of financial leverage (Broye and Weill, 2008). Although the relationship is often assumed to be positive, the results were not convincing. According to Broye and Weill (2008), the relationship was examined in ten countries in Europe and discovered facts that the types of standard leverage are associated with varying degrees of exposure to audit responsibility. The latter has been shown to have a negative influence on the association between financial leverage and audit firm choice (Lennox and Pittman, 2011; Hoang Thi Hong Van, 2018). Therefore, the financial leverage

of businesses is expected to have a negative effect on the ability to select auditing firms. Therefore our third hypothesis is established as follows:

Hypothesis H3: The financial leverage of the firm has a negative effect on the selection of audit

Manalis and Citron (2000) investigated the selection of audit firms in Greece within 5 years after the time when Greece gained independence in 1992. The findings indicate that there is no substantial difference in financial leverage and profitability ratio of total assets between the two classes of customers who use Big6 and non Big6 audit firm services. The rate of return on total assets of the second -tier audit firms is lower than their ratio in the local audit firms. According to Almutairi et al. (2013), Mayhew and Wilkins (2003) have found a positive correlation between ROA and the selection of audit firms. The return on assets has a positive effect on the auditor choice. Therefore, our fourth hypothesis is established as follows:

Hypothesis H4: The rate of return on total assets has a positive influence on the selection of audit firms.

According to Mansi et al. (2004), summarizing financial data and information of auditing companies from Compustat Industrial database from 1974 to 1998. The study shows that the need for audit quality decreases with business uptime. The survey data were based on financial data of Finnish to consider firms' choice Big4 or Non-big4 (Niskanen et al., 2010). The result shows that the firm's operating time is positively associated with the selection audit firm. Almutairi et al. (2013) hypothesized that there was a negative relationship between firm's uptime and audit specialization. The author argues that newly established businesses are less likely to hire high-quality audit firms compared to long-term firms. This is due to limited resources and the inability to afford high audit costs. The results showed that the firm's age variable is negatively related to the selection of high-quality audit. The study indicated that the firm's operating time was positively related to the quality of the audit during the selection process. Momodu et al. (2018) verified the cost of auditing and auditing quality of listed companies in Nigeria. Sample of 9 listed Oil and Gas industry firms in Nigerian during 2007-2017. Audit quality is measured by a large audit firm. The study shows a positive between the number of year operation and the decision to select the audit firms. Almutairi et al. (2018) showed that newly operating enterprises are rarely hiring highly specialized audit firms. These firms have limited resources to pay high audit fees as Big4. Following Chaney, Jeter, Shivakumar (2004), private firms consider choosing Big5 or non-Big when Big5 can bring high quality and audit fees. Therefore, the age of the business is expected to have a positive influence on the selection of audit firms. Long-term businesses continue to keep their positive image in the marketplace and ensure good quality financial statements by audit firms of Big4 group (Momodu et al., 2018).

Thus, our fifth hypothesis is established as follows:

Hypothesis H5: The firms age have a positive impact on the selection of audit firms.

Almutairi (2013) shown that developing businesses tend to reduce asymmetric information. Almutairi et al. (2009) investigated that high-quality audit firm's customer gives lowly asymmetric information. Therefore, growth is expected to have a positive influence on the ability to select auditing firms. The growth rate of the business through the years has a positive impact on the selection of audit firms, which helps the need for transparent information disclosure to increase, and conversely. It is obvious that recognizing the fluctuation of the revenue formation process over time by considering the growth rate of the business. According to Fang et al. (2017), the group of authors performed the audit firms and external audit firms. The study clarifies whether shareholders affects the internal information on the financial statements and solve their problems. Specifically, the external audit at

10 big audit firms in China provides extremely information disclosure quality. The study showed that there is a positive relationship between the revenue growth rate and high-quality audit.

Therefore, the demand for choosing high-quality auditors can help firms to understand whether this change is a positive or passive signal in the production and business process. So, our sixth hypothesis is established as follows:

Hypothesis H6: The firm growth rate has a mixed influence on the selection of audit firms.

Methodology

This study collected from financial statements by 596 JSCs listed on Vietnam's stock market, especially in the Ho Chi Minh Stock Exchange (HOSE) and Ha Noi Stock Exchange (HNX) for a period of 4 years from 2014 to 2017. Total observation is 2135 based on the database of the Thomson Reuters Eikon. The panel data was a combination of cross-section data and time-series data and collected by objects at period time.

In this study, Logistic regression is a special regression model in which the dependent variable considered as a binary variable that accepts only two values of 0 and 1. This regression model is used to predict the probability of an event occurring based on information for independent variables in the model.

Probability: is the probability that the event will happen, denoted by P

Consider the model: $Y_i = \beta_0 + \beta_1 X_{1i} + u_i$ (1)

Where: X_1 is an independent variable; Y is a discrete random dependent variable that takes two possible values 0 (choosing Non-big audit firm) and 1 (choosing Big4 audit firm). To convert to a continuous variable, we calculate the probability of these two states.

Set $p_i = P(Y = 1 | X_{1i})$ – probability Y=1 provided that X= X_{1i} and $1 - p_i = P(Y = 0 | X_{1i})$.

Thus, Y_i has a normal distribution $A(p_i)$

Binary Logistic regression equation

$$\ln \frac{P(Y = 1)}{P(Y = 0)} = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_i X_i \quad (2)$$

Where $P(Y=1) = P_0$: Probability of the event occurring. Probability for the enterprise to choose the Big4 auditing company; $P(Y=0) = 1 - P_0$: Probability that the event does not occur. Probability for enterprise to choose Non-big audit firm (le Cessie, Van Houwelingen, 1994)

Odds coefficient:

Following Roncek, & Swatt (2006), Odds are the ratio between two probabilities: the probability of something happening and not happening. When we have a dependent variable there are only two choices: Y = 1, Y = 0, and the probability that that event happens is denoted by $P(Y = 1) = P$. Statisticians often use a familiar quantity is the Odds of an event happening, not the probability that it happens

$$O_0 = \frac{P_0}{1 - P_0}$$

$$Odds = \frac{P_0}{1 - P_0} = \frac{P(\text{Probability to choose Big4})}{P(\text{Probability to choose Non - big})}$$

Thus, according to this formula, Odds are a function of P. Odds ≥ 0 , and Odds will be undefined when $P = 1$.

From the above formula, we have:
$$P = \frac{Odds}{1 + Odds}$$

Thus, the probability P is a function of Odds. We have P as the probability of the event occurring, then $(1 - P)$ is the probability that the event will not occur.

Substituting into (2) we get:
$$\ln(Odds) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_i X_i \tag{3}$$

This is a form of Logit function. From that, the Ln function of the Odds coefficient is a linear regression function with independent variables X_i

Logit model (McFadden, 1984), P_i is defined as follows:

$$P_i = \frac{1}{1 + e^{-Z_i}} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i)}}$$

With $Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i$; $Z_i \in (-\infty, +\infty)$, $P_i \in (0, 1)$, $X_i (i = 1, k)$

Odds of the above 2 cases are:

$$Odds = \frac{P_i}{1 - P_i} = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i}$$

Taking the Log base e of Odds, we have the form of Logit regression model:

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = Z_i = Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i$$

The above equation is called the logistic distribution function. In this function $X=1$; X_i ; $\beta = \beta_0; \beta_1$. Then X_β takes values from $-\infty$ to $+\infty$, p takes values from 0 to 1, p is nonlinear with X and β parameters. Therefore, we cannot directly apply the least method (OLS) to estimate the parameters of the equation but we use the maximum likelihood (Maximum likelihood) to estimate β_i .

Binary Logistic regression:

From equation (3), we can calculate the predictive probability of choosing Big4 X_i auditing company as follows:

$E(Y / X_i)$: Probability that $Y=1$ occurs when the independent variable X_i has a specific value.

$$P = \frac{e^{\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_i X_i}}{1 + e^{\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_i X_i}} = \frac{e^{\beta^T X}}{1 + e^{\beta^T X}}$$

Model Specification

To measure the effect of variables on auditor selection, this study inherited the research model of Revier et al. (2010) and Knechel et al. (2008). Our empirical model is as follows:

$$AUDCHOICE = \beta_0 + \beta_1 * FIRM SIZE_{it} + \beta_2 * COMPLEXITY_{it} + \beta_3 * LEVERAGE_{it} + \beta_4 * ROA_{it} + \beta_5 * AGE_{it} + \beta_6 * GROWTH_{it} + U_{it}$$

Where AUDITCHOICE is a dummy variable, it gives 1 when audit firms belong to Big4 firms (Deloitte, Ernst & Young, KPMG, and Price Waterhouse Cooper), and it gives 0 otherwise.

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
AUDCHOICE	2,131	0.2426	0.4288	0	1
FIRMSIZE	2,135	27.1436	1.4963	23.3304	32.2004
COMPLEXITY	2,113	0.3901	0.2330	0	0.9876
LEVERAGE	2,135	0.2285	0.1910	0	0.7981
ROA	2,099	0.0694	0.0809	-0.7900	0.8400
AGE	2,135	2.6574	0.5058	0.6931	4.7622
GROWTH	2,135	0.1233	0.4897	-0.9430	5.8

Source: Author's calculation from research data

According to Almutairi (2013); Khan (2016) large firms tend to choose Big4 firms to help them ensure audit quality. FIRMSIZE is a variable that measures by the formula. $FIRMSIZE = Ln(TOTAL ASSETS)$.

By Hay et al. (2006), Hay and Davis (2004) research, firms have high complexity want to choose Big4 firms because of the diversity in business; variable COMPLEXITY measures following the formula: $COMPLEXITY = \frac{INVENTORIES + NET RECEIVABLES}{TOTAL ASSETS}$

Following Almutairi (2013); Khan (2016); Shahzad et al. (2017), LEVERAGE is financial leverage which shows the strength capital when firms meet any obligation; when leverage is high, it is a signal for some risks, and then the ability to choose Big4 firms to provide audit quality is low.

This variable measures by the formula: $LEVERAGE = \frac{TOTAL LIABILITIES}{TOTAL ASSETS}$

By research Almutairi (2013), Revier et al. (2010), ROA is the return on total assets, when this ratio is high, there is an expectation that firms have a better financial situation, so it is high ability to choose Big4. The formula is:

$$\text{Return on total assets (ROA)} = \frac{\text{NET PROFIT}}{\text{TOTAL ASSETS}}$$

According to Almutairi (2013); Khan et al. (2016) AGE show the firms age; the number of the year operating of a firm is counted from the time the firm is established to 2017. Firms with longer operating times tend to choose Big4.

By research, Fang et al. (2017) GROWTH shows the firm's growth rate. This variable expects to show the mixed effect on auditor choice. Following is the formula:

$$Growth = \frac{\text{Revenue of this year} - \text{Revenue of the previous year}}{\text{Revenue in the previous year}}$$

EMPIRICAL RESULTS

Through the calculated descriptive statistical results, we can know the minimum values (Minimum), the maximum value (Maximum), the average value (Mean) and the standard deviation (Std.Deviation) of variables of 596 companies listed on the HCMC Stock Exchange. Ho Chi Minh City in the period of 2014 to 2017.

The selection of audit firms by observation ranged from 0 to 1 in period time 4 year. The firm's size ranges from 23.3304 to 32.2004, average from 2014 to 2017 equal to 27.1436. The firm's complexity ranges from 0 to 0.9876, average from 2014 to 2017 equal to 0.3901. Financial leverage of listed firm ranges from 0 to 0.7981 with an average of 4 years equal to 0.2285. Return on total

Table 2. Correlation matrix of variables

	AUD CHOICE	FIRM SIZE	COMPLEXITY	LEVERAGE	ROA	AGE	GROWTH
AUDCHOICE	1.000						
FIRMSIZE	0.2193*	1.000					
COMPLEXITY	0.0553	0.0390	1.000				
LEVERAGE	-0.0406	0.3972*	0.3902*	1.000			
ROA	0.0443	-0.1625*	-0.2815*	-0.5144*	1.000		
AGE	0.0550	-0.0902*	0.0260	0.0249	-0.0466	1.000	
GROWTH	0.0131	0.0706*	0.0280	-0.0020	0.0217	-0.0636*	1.000

Source: Author's calculation from research data
 * denote the level of significance of 5%;

assets (ROA) of observers that have a 4-year average value is 0.0694, that is, from 2014 to 2017, for every one investment in the company's assets, the return 0.0694 VND profit after tax; the largest and smallest ROA ratios of observed enterprises were -0.79 and 0.84 respectively. The operating time of listed enterprises ranged from 0.6931 to 4.7622 with an average equal to 2.6574. The growth rate of listed enterprises ranged from -0.9430 to 5.8 with an average equaling 0.1233.

After analyzing descriptive statistics, to consider whether the model is affected by the collinearity phenomenon, this study conducted a correlation analysis by Pearson matrix correlation coefficient of correlation with dependent variables and independent variables. The correlation results between the dependent and independent variables in Table 2 show:

At the 5% significance level, there is a positive correlation between the audit choice variable and the firm size, while there is a negative correlation between the audit choice the business complexity. Between the firm size and the complexity show the positive impact, inversely the variable firm size and the return on assets show the negative association. Both the complexity and leverage financial, and operating time present the positive correlation, but the complexity and return on assets, and the growth address the negative association. Both leverage and the return on assets, and operating time and growth present a negative correlation.

In general, the data in Table 2 show that there is little correlation between most independent variables, because the highest correlation is 0.428, lower than the 0.8 benchmarks.

Chi-squared is 343.98, Prob> Chi2 is 0.000 < 0.05 (95% confidence level) so the regression model has statistical significance. These factors affect the selection of audit firms. Pseudo R2 coefficient equal to 0.2068 means that 20.68% of dependent variables are explained by independent variables in the model. Besides, the P-value FIRMSIZE and LEVERAGE variables is less than 0.001 (95% confidence level), and the P-value of GROWTH variables are 0.045 is less than 0.005 (95% confidence level). The rest of variables is more than 0.01, Therefore COMPLEXITY, ROA, AGE variables do not affect the auditor choice.

The constant value of -26.6289 of the regression model shows that when the firm size, firm complexity, financial leverage and firm age are at 0, AUDCHOICE is at -2662.89%.

Table 3. The results of the logit model regression

Variables	Coeff.	dY/dX	P-value
Cons	-26.6289		0.000
FIRMSIZE	0.3920***	0.1953	0.000
COMPLEXITY	-2.8137	0.2433	0.142
LEVERAGE	-0.3795***	0.2424	0.000
ROA	-0.1813	0.2418	0.616
AGE	-0.2237	0.2425	0.136
GROWTH	0.9657**	0.2421	0.045
<i>Obs</i>			2073
<i>Prob > chi2</i>			0.000
<i>LR chi2 (6)</i>			343.98
<i>Pseudo R2</i>			0.2068
<i>Log likelihood</i>			-914.73382

Source: Author's calculation from research data

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

Impact independent variables on the dependent variable:

Firms Size variable:

P-value = 0.000 and regression coefficient > 0, this proves that firm size has a positive effect on the selection of audit firms. In addition, the marginal impact is 0.1953648, while the other factors remain unchanged, the firms listed on HOSE select Big4 is 19.53648% higher than the selection of Nonbig.

Financial leverage variable:

Financial leverage statistical significance level <1% and the coefficient β is <0, shows that the financial leverage of enterprises has a negative effect on the selection audit firms. Enterprises with high financial leverage decided to choose Big4 audit firms 24.24988% more than choosing Nonbig auditing company (marginal impact coefficient 0.2424988).

Firms Growth Variable:

Firms Growth have a level of significantly less than 5% and regression coefficient > 0. This mean Firms Growth is positively correlated with AUDCHOICE. Moreover, the marginal impact is 0.2421158, while the other factors remain unchanged, the firms listed on HOSE select Big4 is 24.21158% higher than the selection of Nonbig.

According to the analysis from Table 4 shows that the correct forecast level for the whole model is more than 78 percentage, which means that high accuracy on predict with the businesses factors related to the audit firm choosing decision. Results of the Logit model, it has been confirmed that whether the model is statistically significant with the H0 hypothesis: The model has no statistical significance. The results show that the value of Prob> chi2 equal to 0.000 is 5% smaller than the meaning level, so the writer rejected H, that is, the model built is suitable and statistically significant.

Firms Size has a positive effect on the selection of audit firms. This reason is firms' need to expand the international relationships globalization, enterprise investors demand high-quality audit

Table 4. Predict model

	True		
Classified	D	~D	Total
+	151	91	242
-	356	1475	1831
Total	507	1566	2073
Classified + if predicted $Pr(D) \geq .5$			
True D defined as AUDCHOICE !=0			
Correctly classified			78.44%

Source: Author's calculation from research data

options. This will help investors control the internal operations of the business, improve operational efficiency and reduce differences in information asymmetry. Besides, the audit fee does not increase as quickly as the size of the business. Firms consider the proportion of increasing audit costs and the proportion of increasing firm size to choose big audit firms. When the total value of the assets of businesses increases, they tend to select auditing firms of Big4 group to increase transparent information. Following DeFond (1992), Myers et al. (2003), Knechel et al (2008), Broye and Weill (2008), Revier et al (2010), firm size and audit choice have a positive relationship, it consistent with this study. In contrast to the above studies, Chow and Rice (1982) found that there is a negative relationship between the two variables. In addition, in another study by Hoang Thi Hong Van (2018), the Firms Size variable was not statistically significant.

Financial leverage of enterprises has a negative effect on the selection audit firms. The leverage ratio is a double-edged sword for the operation of companies. When businesses increase using debt in their operations, they tend less to disclose transparent information their business operations as well as pay more than high-quality audit costs. This result is consistent with Knechel et al. (2008). In contrast to the research of Hoang Thi Hong Van (2018), the financial leverage of enterprises has a positive impact on the selection of auditing firms.

Besides, the results investigate the positive relationship between firms growth and auditor choice, which is consistent with the study Almutairi et al. (2013); Fang et al. (2016); Hartono et al. (2013). The agency theory shows that management tends to seek external audit firms to minimize agency costs and the difference in agency cost will lead to systematic differences in selection audit firms. By research Ketelaere (2007) also agrees with DeFond (2000) on outsourcing by auditors because of the differences in benefits between manager and owner. Agency theory says that auditors are selected to ensure interests between third parties and managers. Therefore, when the company grows rapidly, the accounting policies have not changed following the business activities. Firms tend to choose auditing firms that are easy to accept current financial statements.

CONCLUSION

By using quantitative methods in the logit regression model, this study has investigated factors that affect the selection of audit firms in enterprises. The result shows that three variables firms size, growth, and financial leverage have a significant relationship to auditor choice. This means that larger firms prefer to have the Big Four audit their financial statements. Furthermore, firms with higher growth tend to choose the Big 4, whereas firms with lower leverage tend to choose the Big 4.

From the research results, the writer has given some recommendations to enterprises to enhance the selection of high-quality auditing firms of firms on the Ho Chi Minh Stock Exchange through measures to influence regulators, investors, and audit firms.

For regulators, the study provides some implications in suggesting policy in the selection of professional and reputable auditing firms in the market. It is necessary to develop a framework of basic requirements for the selection of an external audit firm. To be able to create consistency in the process of selecting an auditing company, the management agency needs to build a specific basis and define a framework of referenced basic requirements for businesses in Vietnam. Specifically, based on the size of the enterprise, the nature of the production and business sectors (manufacturing, services, construction, etc.), the scope of activities, and the complexity of the enterprise through the number of certificates leading to select an audit firm propriety. Besides, the regulators should strengthen the supervision of activities of external audit firms in Vietnam. It is necessary to build an audit quality control system from outside such as the State Securities Commission, Ministry of Finance, VACPA, and other organizations based on a professional career as the way developed countries like the United States do.

For investors, The Board of Directors must establish a system of reports and request the management to provide information which must be verified by the Supervisory Board for its truth, usefulness, and timeliness. This helps the board members avoid information asymmetry when they are not directly running the company, but they can have full information when making decisions. In addition, investors who want to invest in a listed company must consider the disclosure of information about the company's business activities, whether financial information is presented and disclosed in the financial statements or not. The entity has been audited and fully disclosed information on the notes will help investors avoid asymmetric information to make appropriate investment decisions.

For external audit firm, the selection, training and retraining of quality auditors is extremely necessary. In addition, external audit firms need to coordinate with major international auditing firms and professional organizations to have appropriate training programs in association with international standards. Each auditor must demonstrate professionalism in fully understanding and complying with professional ethics, professional discipline, and persistently preventing and combating violations of professional ethics. Resolutely fight against unfair competition to reduce audit fees, leading to unsatisfactory audit quality. In order to create a professional competitive environment, bringing benefits to information users.

The research still has some limitations. Firstly, the factors selected for research are mainly quantitative and related financial variables, while there may be other significant factors that have not been considered such as managers' qualifications, regions, and areas of activity. Secondly, the scope of this study is to get only the secondary data collected from the Financial Statements from Thomas Reuter, not surveyed or consulted from the internal company, Thirdly, the topic of data analysis from 2014 to 2017 is not enough time to assess the trend of demand of enterprises in selecting auditing firms based on analytical criteria. If the time range is extended further, the results obtained may vary. Fourthly, the calculation of financial numbers is constructed from the financial statements of the company, so these figures are calculated by book value regardless of their market value. Due to Vietnamese Accounting Standards, it is very difficult to use market values in financial statement presentations. Fifthly, the limitations of the econometric model inherent in empirical research may be the result of bias.

From the results and limitations mentioned above, in the future, it is necessary to do research and to promote the limitation such as expanding non-financial factors related to choosing auditing firms of enterprises and increasing the number of samples to have an overview of the financial performance of the whole economy. Besides, the more field and the more data is collected on HNX, UPCOM, and unlisted companies, there is a completely overall view of the Vietnam economy.

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