

Conglomerate Diversification Strategy: good or bad? – Evidence from Vietnam^{1 2}

Nguyen Thi Xuan Trang³

The University of Danang

THE AIMS OF THE PAPER

The paper aims to check the effectiveness of conglomerate diversification strategy in case of Vietnam by testing the relationship between unrelated diversification level and firm value of listed companies in this country.

METHODOLOGY

A sample of 70 listed firms in Vietnam during the period from 2007 to 2014 is collected in the research. With the feature of a balanced panel data set, three regression methods consisting of Pooled OLS regression, Fixed effects model and Random effects model, are, in turn, applied thanks to *Stata 12.0*. After that, F test and Hausman test are used to find out the most preferable method to the model. Problems of multicollinearity, heteroscedasticity, autocorrelation and endogeneity are also considered in testing.

MOST IMPORTANT RESULTS

There are no statistical evidences to assert the negative relationship between conglomerate diversification level and firm value through Tobin's q at 5% significant level. It can be explained that from 2007 to 2014, the average diversification level for each listed firm in Vietnam was quite low, less than 0.2. Thus, diversifying into new industries that were rather different from the core industries could bring not only challenges but also opportunities for the firms in this country in the current era of globalization.

RECOMMENDATIONS

It is recommended that implementing conglomerate diversification strategy of a company should be revised when unrelated diversification level reaches to a certain maximum amount that is expected to make this strategy go counter to benefits of the principals.

Keywords: Conglomerate diversification, Firm value, Vietnam

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INTRODUCTION

Diversification strategy is a corporate strategy that a firm pursues through diversifying its business portfolio to allow revenue smoothing between different business lines (Castaner and Kavadis 2013). The term of diversification has appeared since 1957 in the study of Ansoff (1957). Diversification can be divided into two different categories including *related diversification* and *unrelated diversification*. *Related diversification*, or *concentric diversification*, happens when a firm expands its activities to related industries based on its current competitive position together with available bases (such as product knowledge, manufacturing capabilities or marketing skills). In the meanwhile, *unrelated diversification* strategy consists of diversifying a firm's business portfolio through participating in new industries that are unrelated to its core industries. *Unrelated diversification* can be called with different names: *conglomerate diversification* or *pure-financial diversification*.

In terms of the effectiveness of diversification strategy, it seems to be not a good strategy for the firm because there were much more researches proving its disadvantages on not only firm performance (Amit and Livnat 1988, Hoskisson et al. 1993, or Berger and Ofek 1995) but also firm value (Anderson et al. 2000, Jiraporn et al. 2006, Hoehle et al. 2012 or Castaner and Kavadis 2013) than researches disagreeing with these disadvantages (Villalonga 2004) or affirming its benefits (Campa and Kedia 2002); and it is noticeable that unrelated diversification was proved to have more negative effects on firm value than related diversification. In real circumstances, it is undeniable that high diversification level and weak corporate governance were important causes leading to the collapse of Enron in the United States in 2001. Therefore, several researches have studied on the effectiveness of conglomerate diversification strategy.

In Vietnam, a typical example for the consequence of highly unrelated diversification that arose from poor corporate governance was the default of Vietnam Shipbuilding Industry Group (Vinashin) in 2010. It can be seen as a disaster for the economy of Vietnam. It showed the weaknesses in the management of Vietnamese government. It reduced the image of Vietnam in the international business market when all Vietnam's credit ratings were downgraded according to Moody's Investors Service, Standard and Poor's and Fitch Ratings (Hookway and Tudor 2010). Furthermore, it retarded sea economic development of Vietnam as well increased

the cost burdens for related organizations in the economy. The failure of Vietnam Shipbuilding Industry Group (Vinashin) proves the significance of diversification strategy in a corporation. It affects substantially on the existence as well as the growth of the firm. It can create opportunities for the firm to grow rapidly. In the meanwhile, it can also push the corporation to the brink of bankruptcy as the case of Vinashin. Thus, the firms should be very cautious in applying this strategy.

Most previous empirical evidences and arguments supported the ineffectiveness of diversification strategy, specially of unrelated diversification strategy, such as Morck et al. (1990), Comment and Jarrell (1995), Lang and Stulz (1994), Berger and Ofek (1995), Amihud and Lev (1999) and Martin and Sayrak (2003). This motivates the author to check the effectiveness of conglomerate diversification strategy in case of Vietnam by considering the relationship between unrelated diversification level and firm value of listed companies in this country.

LITERATURE REVIEW

Diversification strategy

Ansoff (1957) suggested four types of product – market strategies for business growth, namely *market penetration*, *market development*, *product development* and *diversification*. Among these four strategies, diversification strategy is applied when there is a combination of both market development and product development with new requirements of skills, techniques and facilities.

Ramanujam & Varadaraja (1989) agreed with the above definition of diversification when they defined diversification as “the entry of a firm or business unit into new lines of activity, either by processes of internal business development or acquisition, which entail changes in its administrative structure, systems, and other management processes”.

Developing from the diversification definition of Ansoff (1957), a large number of subsequent researchers, such as Amit and Livnat (1988), Berger and Ofek (1995), Anderson et al. (2000), Wheelen and Hunger (2006), Kim and Chen (2010), and Lien and Li (2013), continued to divide diversification into two different categories including *related* or *concentric diversification* and *unrelated* or *conglomerate diversification*. For example, Berger and Ofek (1995) suggested that *unrelated* diversification was applied in a multi-segment firm when the firm had two or more segments with various

two-digit Standard Industrial Classification (SIC) codes; on the contrary, if all segments of the firms were in the same two-digit SIC code, it meant that the firm was working out *related* diversification strategy. Wheelen and Hunger (2006) suggested that *diversification strategy* could be *concentric* if the firm expanded its activities to related industries based on its current competitive position together with available bases (such as product knowledge, manufacturing capabilities or marketing skills), or be *conglomerate* when the firm diversified into new industries that were unrelated to its core industries.

One noticeable thing is that all these growth strategies could be implemented by either internal means as spreading out operations domestically and globally, or external ones such as mergers, acquisitions, or strategic alliances (Wheelen & Hunger 2006).

In addition, diversification could be also classified into: industrial diversification and global diversification by some authors such as Jiraporn et al. (2006) and Salama & Putnam (2013). Jiraporn et al. (2006) collected 1862 U.S. firm-year observations in 1993, 1995 and 1998 from Research Insight COMPUSTAT Industrial Segment file (CIS) and the Geographic Segment file (CGS), and they categorized diversification into four various regimes (*Focused*, *Only Industrially Diversified*, *Only Globally Diversified*, and *Both Industrially and Globally Diversified*) depending on the number of segments a firm reported in the CIS file together with the report on foreign sales in the CGS file. According to Jiraporn et al. (2006), global diversification in a firm would happen whenever the firm had at least one business segment operating outside the home country. Being more updated than the study of Jiraporn et al. (2006), Salama & Putnam (2013) used a sample, consisting of 5985 U.S. firm-year observations from 2002 to 2006, collected from COMPUSTAT and the Corporate Library databases. Salama & Putnam (2013) also called a firm a globally diversified one if it had at least one foreign segment, but its total foreign sale needed to be greater than zero.

Effectiveness of diversification strategy

In terms of the effectiveness of diversification strategy, it seems to be not a good strategy for the principals because there were several researches proving its disadvantages on firm performance and firm value. Amit and Livnat (1988) realized that diversified firms generally made lower profits than undiversified counterparts. Similarly, Hos-

kisson et al. (1993) found statistically significant negative relations between diversification strategy and various accounting measures of performance (Return on assets, Return on equity and Return on sales). Subsequently, several studies also discovered its negative effects on stock valuation through Tobin's q-ratio (Lang and Stulz 1994), operating profitability (Berger and Ofek 1995), abnormal stock returns (Comment and Jarrell 1995) and firm value (Anderson et al. 2000, Jiraporn et al. 2006, Hoechle et al. 2012 or Castaner and Kavadis 2013).

It is noticeable that unrelated diversification was proved to have more negative effects on firm value than related diversification. There were a number of researchers exploring drawbacks of conglomerate diversification strategy compared with concentric diversification strategy. Rumelt (1982) divided into seven strategic diversification categories (*Single business*, *Dominant vertical*, *Dominant constrained*, *Dominant linked-unrelated*, *Related constrained*, *Related linked* and *Unrelated business*) and he/she tested the relationship between diversification strategy and profitability of U.S. firms for the period 1955-1974 according to this classification. Finally, it was found that the group of unrelated business was the least profitable group among seven categories. Although Amit and Livnat (1988) asserted advantages of pure-financial diversification in reducing operating risk as well as increasing financial leverage for the firms, they found that these advantages were accompanied by lower profitability than undiversified firms. Morck et al. (1990) found the negative relationship between unrelated acquisitions and stock prices in 1980s. After that, results of Berger and Ofek (1995) showed that unrelated-diversified firms incurred more value loss or diversification discount than related-diversified firms. Furthermore, after reviewing a large number of previous studies, Amihud and Lev (1999) found that, in most cases, conglomerate mergers reduced the value of the company due to agency costs that resulted from conflict of interests between the principals and agents. Hoechle et al. (2012) published a research about the reason for this negative relationship. Their research was based on a sample of U.S. companies covering the period 1996 to 2005 and they found an increase in diversification discount from 16% to 21% after adding governance variables as regression controls in panel data models. Thus, they argued that the negative effect of unrelated diversification on firm value could be partly attributed to poor corporate governance in the firms. This opinion was consistent with the findings of Gleason et al. (2012) and Salama and Putnam (2013). Gleason et al. (2012) realized that the

value destruction of diversifying acquisitions happened only when there was a lack of strong boards or external monitoring. In the meanwhile, Salama and Putnam (2013) supported the relationship between poor quality of corporate governance and negative financial consequences attributable to global diversification.

Regarding industrial diversification and global diversification, the negative relationship between the extent of firm diversification and firm value was also confirmed by Jiraporn et al. (2006) for *only industrially diversified* firms and *both industrially and globally diversified* ones when they examined the connections among corporate governance, strength of shareholder rights, probability to diversify and firm value based on 1862 firm-year observations in the US during the years of 1993, 1995 and 1998.

Nevertheless, there were some opposite opinions in comparison with above arguments on the helpfulness of diversification strategy. Villalonga (2004) proved that diversification, on the average, did not destroy firm value. In addition, some authors supported the positive relationship between diversification and corporate value. For example, Campa and Kedia (2002) proposed that if a firm actually pursued a diversification strategy, firm value would be enhanced thanks to this strategy. Then Kim and Chen (2010) found a significantly positive effect of business diversification on corporate value when they used the data of 377 listed corporations on the Korea Exchange from 1999 to 2005; or Pratyaksa et al. (2015) explored the benefits from conglomerate diversification strategies on firm value owing to ownership structure characteristics in the business market of Philippines. Interestingly, the research of Lien and Li (2013) indicated that a diversification strategy contributed positively to performance until a certain amount of the diversification level. After that amount, a further increase in diversification level would lead to reduce return of the firm.

From literature review, a hypothesis is put forward to test whether unrelated diversification is a value-destroying strategy in case of Vietnam.

Hypothesis: The higher unrelated diversification level of a firm is, the lower the firm value becomes.

METHODOLOGY

Data

In order to select a sampling frame in accordance with the research objectives, it is important to have an overview of economic development in Vietnam.

After more than 100 years for resistance wars against France and America, Vietnam officially unified the whole country in the year of 1975. From this time, Vietnam's revolutionary moved to a new phase – the period when the country went towards socialism. However, during ten years from 1976 to 1986, Vietnam faced a serious economic crisis when it followed a centrally planned economy with the domination of state-owned enterprises and discouragement of competition. Thus, in the Sixth Congress of the Vietnamese Communist Party in December 1986, Vietnam emphasized on implementing a comprehensively renewal policy for the country, particularly in terms of the innovation in economic thinking, in order to transform the economic system from a *centrally controlled command economy* to a *socialist-oriented market economy*. The period 1986-2000 can be called as the era of *Renovation (Doi Moi)* of Vietnam with the its integration into the regional economy; for example it became a member of the Association of Southeast Asean Nations (ASEAN) in 1995, of the Asia-Europe Meeting (ASEM) in 1996 or of the Asia-Pacific Economic Cooperation Forum (APEC) in 1998. In this period, the Vietnamese government also passed a number of laws such as Law on Foreign Investment in 1987, Law on State Enterprises in 1995, and Law on Enterprises (for limited liability companies and joint-stock ones, partnerships and private enterprises) in 1999.

From 2000 afterwards that can be called as the era of *Economic Development*, Vietnamese State put emphasis on building an independent and autonomic economy on the basis of mobilizing internal resources and actively integrating into the international economy, as well as on implementing industrialization and modernization of the country in the development of the socialist-oriented market economy. This content was mentioned in Resolution No. 51/2001/QH10 on amending and supplementing some articles of the Constitution of the Socialist Republic of Vietnam in 1992. While Constitution of the Socialist Republic of Vietnam in 1992 asserted the role of administration of the State in the development of economy in the 15th article, this role was not stated in the Resolution No. 51/2001/QH10. This showed that Vietnamese

State really wanted to encourage competition or establish a competitive economy in the forthcoming development of the country.

With the target of internationally economic integration in the period of *Economic Development*, in November 2005 Vietnamese National Assembly promulgated Enterprise Law No. 60/2005/QH11 that was applied for enterprises of all economic sectors when it replaced the previous laws on State Enterprises together with the Law on Enterprises No. 13/1999/QH10 in 1999. This new enterprise law took effect from July 2006; however, it was conjunctively replaced by Enterprise Law No. 68/2014/QH13 that was valid from 01 July 2015. Moreover, in the year of 2007, Vietnamese Minister of Finance announced the Decision No. 12/2007/QD-BTC on issuing Regulations on Corporate Governance applicable to companies listed on the Stock Exchange or Securities Trading Center. Therefore, the chosen sampling frame of this study is listed firms on the stock markets in Vietnam during the period from 2007 to 2014 that is suitable with the appearance and effectiveness of Enterprise Law No. 60/2005/QH11.

At the beginning, this study selected companies that were listed from the year of 2006 onwards from both stock markets namely Ho Chi Minh Stock Exchange (HOSE) and Ha Noi Stock Exchange (HNX) in order to guarantee that these companies were able to publish annual reports from 2007 to 2014 continuously. After that, it eliminated the firms that did not publish enough annual reports from 2007 to 2014 or did not present complete data about corporate governance in their annual reports during this period. The final sample is a balanced panel data set of 70 listed companies in both stock markets in Vietnam in the years from 2007 to 2014, which gives 560 observations in total.

Variables

Dependent variable

The dependent variable is Firm value. When measuring the value of a diversified firm, most researchers, such as Anderson et al. (2000), Jiraporn et al. (2006), Hoechle et al. (2012), Salama and Putnam (2013), Castaner and Kavadis (2013) adopted *excess value* that was firstly mentioned in the study of Berger and Ofek (1995). Berger and Ofek (1995) defined *excess value* as “the natural logarithm of the ratio of a firm’s actual value to its imputed value”. They suggested that the actual value of the firm was the total book value of debt plus market value of equity, and the imputed value was the sum of the imputed values of all segments in the firm. However, because there was no unification in disclosing information on industrial taxonomy of listed firms in Vietnam when comparing the disclosure of the firms themselves with the release of each stock market (HOSE or HNX), it was impossible for this study to collect the industrial data of each segment (Manufacturing, Trade, Service or Construction) during the period 2007 – 2014. Thus, in steads of using the imputed value, the imputed value in the denominator is replaced into book value of total assets of the firm. In other words, this study utilizes Tobin’s *q* to measure firm value instead of excess value in previous researches. This measurement is in accord with that of Lang and Stulz (1994), Kim and Chen (2010) and Lien and Li (2013).

Malkiel et al. (1979) defined Tobin’s *q* as the ratio between market value and book value or replacement/reproduction cost of the same asset or group of assets based on the study of Tobin in 1969. Following this definition, this research calculated Tobin’s *q* as the following formulation:

$$\text{Tobin's } q_t = \frac{(\text{Number of outstanding shares in year } t * \text{Closing price of shares on the last trading day of the year } t) + \text{Total liabilities at end of year } t}{\text{Total assets at end of year } t}$$

Independent variable

The independent variable is Firm diversification level. In accordance with data availability of industrial classifications published by listed firms in Vietnam during the periods from 2007 to 2014, this research chooses *Modified Berry Herfindahl index* that was suggested by Montgomery (1982) to measure diversification. The closer the index of a firm is to 1 (or 0), the more diversified (or concentrated) the firm is. This measurement is similar to the researches of Amit and Livnat (1988), Goranova et al. (2007) and Kim and Chen (2010).

Formula of Modified Berry Herfindahl index:

$$\text{Firm Diversification Level} = 1 - \frac{\sum P_i^2}{(\sum P_i)^2}$$

where P_i : proportion of each segment's sales to total sales

Therefore, in order to calculate Modified Berry Herfindahl index, information on sales of four sections (Manufacturing, Wholesale Trade and/or Retail Trade, Service, and Construction) of each company is collected from 2007 to 2014. These data are collected from Audited Consolidated Financial Statements of each year published by each firm.

Control variables

Control variables comprise variables as proxies of corporate governance mechanisms and variables related to firm's characteristics. In particular, there are ten control variables used in this study. *Executive stock options* (ESO) variable is a dummy variable with the value 1 if the executives had stock options in the year; otherwise, its value will be equal to 0. *Executive ownership* is measured by the proportion of stock held by only executives in the Executive Committee in the year. *Blockholder*

ownership is measured by the percent of shares owned by large shareholders who hold directly or indirectly 5% or more of total votable shares issued by the listed organization in the year. *Board composition* is a ratio of the number of independent directors to the total number of registered directors in the year. *Duality in position* is attributed 1 when a company's CEO serves as a board chairman in a given year and 0 otherwise. Next, *firm accounting performance*, *firm size*, *firm leverage*, *free cash flow dummy* and *state ownership* are variables representing firm's characteristics. Return on assets (ROA) measured as Net income divided by Average assets is used as a proxy of firm accounting performance. Natural logarithm of total assets becomes a proxy for firm size. Firm leverage is defined as the ratio of total debt to total assets. Free cash flow dummy (FCFDum) takes on the value 1 if free cash flow is greater than zero and 0 otherwise. In the study, free cash flow is defined as Net cash flow from operating activities after deducting both Cash Dividends and Capital Expenditures. Lastly, State ownership is calculated through the proportion of shares owned by Vietnamese State to the total number of shares issued at a given year. It is noticeable that when considering the degree of diversification and firm value in the year t , some control variables related to firms' characteristics such as Free cash flow dummy, Firm accounting performance, Firm size, and Firm leverage are calculated in the year $(t-1)$ to reflect their impacts on the diversification level of the following year.

Model specification

The following research model is used to measure hypothesis test.

Model (Firm Value Equation):

$$\begin{aligned} \text{Firm value}_{it} = & \beta_{0it} + \beta_1 \text{Firm Diversification level}_{it} + \beta_2 \text{Executive stock options}_{it} + \\ & \beta_3 \text{Executive ownership}_{it} + \beta_4 \text{Blockholder ownership}_{it} + \beta_5 \text{Board composition}_{it} + \\ & \beta_6 \text{Duality in position}_{it} + \beta_7 \text{Free cash flow Dummy}_{it} + \beta_8 \text{Firm accounting performance}_{it} + \\ & \beta_9 \text{Firm size}_{it} + \beta_{10} \text{Firm leverage}_{it} + \beta_{11} \text{State ownership}_{it} + u_{it} \end{aligned}$$

$$\begin{aligned} \text{Tobinsq}_{it} = & \beta_{0it} + \beta_1 \text{FDiv}_{it} + \beta_2 \text{ESO}_{it} + \beta_3 \text{EXO}_{it} + \beta_4 \text{BLKO}_{it} + \beta_5 \text{BCOM}_{it} + \beta_6 \text{DUAL}_{it} + \\ & \beta_7 \text{FCFDum}_{it} + \beta_8 \text{ROA}_{it} + \beta_9 \text{SIZE}_{it} + \beta_{10} \text{LEV}_{it} + \beta_{11} \text{StaO}_{it} + u_{it} \end{aligned}$$

Where i represents the cross-section unit, t stands for the time

$$i = 1, 2, \dots, 70; \quad t = 2007, 2008, \dots, 2014$$

and the error term (u_{it}) is assumed to follow the normal distribution with zero mean and constant variance: $u_{it} \sim N(0, \sigma^2)$.

Because the dataset in the research is a balanced panel data and dependent variable (Tobin's q) is a scale variable, three regression methods including Pooled OLS regression, Fixed effects model and Random effects model, are, in turn, applied for the model owing to *Stata 12.0*. Moreover, after applying F test and Hausman test to explore the most suitable equation of firm value corresponding to

the sample in the research, the author tests multicollinearity, heteroscedasticity, autocorrelation and endogeneity of the chosen model in order to guarantee estimators to be best and unbiased.

RESULTS AND DISCUSSION OF RESULTS

Overall descriptive Statistics

Table 1 presents descriptive statistics of all variables used in the research. The more detailed description of two main variables (Tobin's q and Firm diversification level) will be provided in next parts.

Table 1: Overall descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Tobin's q	560	1.271	0.951	0.338	14.007
Firm diversification level	560	0.164	0.184	0	0.664
Executive stock options	560	0.498	0.500	0	1
Executive ownership	560	0.041	0.070	0	0.623
Blockholder ownership	560	0.490	0.203	0	0.8782
Board composition	560	0.210	0.210	0	1
Duality in position	560	0.325	0.469	0	1
Free cash flow dummy	560	0.380	0.486	0	1
Firm accounting performance (Return on Assets)	560	0.087	0.091	-0.332	0.575
Firm size	560	26.941	1.301	24.086	30.761
Firm leverage	560	0.471	0.212	0.040	0.924
State ownership	560	0.294	0.208	0	0.791

Source: own creation

Survey diversification level of listed companies on stock markets in Vietnam

On the average, diversification level of listed firms in Vietnam was quite low at 0.164. The maximum level of diversification was 0.664 (Table 1). Furthermore, among 560 observations, there were 136 observations with the extent of diversification at zero. This might be a good sign for Vietnam's economy with high concentration in business lines of shareholding companies.

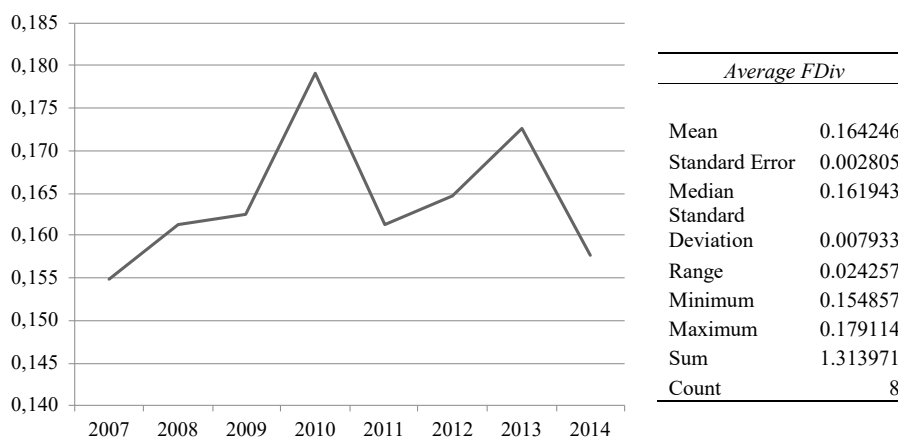
This study collects the findings on the sample mean of unrelated diversification level from previous researchers who also used Berry Herfindahl index to calculate the extent of diversification in various countries (Table 2). It is found that the differences in unrelated diversification level among countries are not significant although the studies were conducted in various periods. This finding shows that concentric diversification strategy was more preferable than conglomerate one not only in Vietnam but also in other nations.

Table 2: A survey of diversification level from different researches

Country	Mean of unrelated diversification level	Period	Source
United States	0.48	1980	Amit and Livnat(1988)
United States	0.25	From 1994 to 1999	Goranova et al. (2007)
Korea	0.1831	From 1999 to 2005	Kim and Chen (2010).
Vietnam	0.164	From 2007 to 2014	This study

Source: own collection

Figure 1: Trend of average diversification level from 2007 to 2014 in Vietnam



Source: own creation

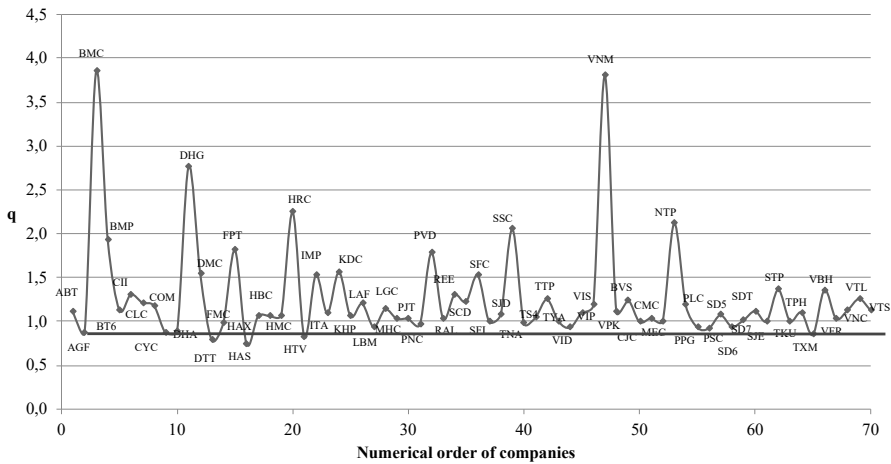
When looking at the trend of diversification level in Vietnam in Figure 1, it is shown that there was only a minor fluctuation in the average diversification level in the range from 0.155 to 0.179 over 8 years from 2007 to 2014. Hence, the average diversification level in Vietnam was quite stable over time.

Survey firm value of listed companies in Vietnam

Firm value in this research is measured by Tobin's q ratio. Figure 2 illustrates 8-year average Tobin's

q ratios of 70 listed firms in the sample. It can be seen from Figure 2 and Table 1 that market value of total assets in most companies was larger than their book value when 8-year average Tobin's q ratios of more than 50 firms were larger than 1 and the average Tobin's q for each company was 1.271. This implies that approximately 70% of the companies in the sample were over-valued. These firms were successful in recovering their replacement costs of assets. This might be a good signal for not only current shareholders but also potential investors who intend to invest in Vietnamese stock markets. It also creates incentives for entrepreneurs to make new investment.

Figure 2: 8-year average Tobin's q ratios of 70 listed firms in Vietnam



Source: own creation

The effect of diversification level on firm value of listed companies in Vietnam

Regression results show that despite which method was applied (Pooled OLS regression, Fixed effects model or Random effects model), there are not evidences to confirm the impact of diversification on firm value in Vietnam because this relationship was statistically non-significant with p-values higher than 10% in all methods. However, before leading to final conclusions on this relationship, the author attempts to explore the most suitable equation of firm value corresponding to the sample in the research. Firstly, F test and Hausman test are applied. These tests indicate that Fixed effects model is more appropriate than Random effects model in showing determinants of firm value. Secondly, in order to guarantee estimators to be best and unbiased, multicollinearity, heteroscedasticity, autocorrelation and endogeneity of the Fixed effects model for firm value are tested. The tested results indicate that while the multicollinearity problem seems to be avoidable in the chosen Fixed effects model; and Firm diversification variable (FDiv) can be treated as an exogenous variable, the chosen model exists heteroscedasticity and first-order autocorrelation in the panel data.

Because both heteroscedasticity and autocorrelation existed in the chosen Fixed effects model, the author runs regression with Driscoll-Kraay

standard errors to produce standard error estimates that are robust to disturbances being heteroscedastic and auto-correlated with moving average lag 1 as suggestion of Hoechle (2007).

Table 3 shows results from running regression with Driscoll-Kraay standard errors for firm value function owing to *Stata 12.0*. From the results shown in Table 3, the research does not find the significant relationship between unrelated diversification level and firm value at 5% level of significance when the correlation coefficient of FDiv and Tobins q is 0.492 with p-value at 0.18. Hypothesis 4 is rejected.

Although insignificant p-value existed, this positive correlation coefficient raised the doubt about the negative effect of conglomerate diversification on firm value as several authors mentioned in the literature. Thus, this study continues to run regression for two sets of data. The first set of data consisted of 30 companies having 8-year average diversification levels greater than the average diversification level of total beginning sample (0.164). The second set comprises 40 remaining companies corresponding to 320 observations with low 8-year average diversification levels. Three regression methods (Pooled OLS regression, Fixed effects model and Random effects models) are applied for each set of data to test the effect of diversification on firm value. The results are shown in the Table 4.

**Table 3: Results from running regression
with Driscoll-Kraay standard errors for firm value function**

Regression with Driscoll-Kraay standard errors					Number of obs = 560	
Method: Fixed-effects regression					Number of groups = 70	
Group variable (i): Id					F(11, 7) = 28.95	
maximum lag: 1					Prob > F = 0.0000	
					within R-squared = 0.3773	
Tobinsq	Coef.	Drisc/Kraay Std. Err.	t	P> t	[95% Conf. Interval]	
FDiv	0.492	0.330	1.490	0.180	-0.289	1.273
ESO	-0.017	0.052	-0.330	0.750	-0.141	0.107
EXO	5.363	2.997	1.790	0.117	-1.723	12.449
BLKO	0.366	0.216	1.690	0.134	-0.145	0.877
BCOM	0.226	0.186	1.210	0.264	-0.214	0.667
DUAL	-0.023	0.058	-0.390	0.706	-0.160	0.115
FCFDum	0.077	0.078	0.980	0.358	-0.108	0.261
ROA	2.351	1.242	1.890	0.100	-0.587	5.289
SIZE	-0.781	0.153	-5.110	0.001	-1.142	-0.420
LEV	1.659	0.454	3.650	0.008	0.585	2.734
StaO	3.113	1.827	1.700	0.132	-1.207	7.434
_cons	19.867	3.272	6.070	0.001	12.131	27.604

Source: own creation

Clearly, it can be seen from Table 4 that although all p-values are insignificant, the correlation coefficient of FDiv and Tobinsq changes from positive direction in the sample of 40 firms with low diversification level to negative direction in case of companies with high diversification level. This change happens in all three applied methods. This proves that the negative impact of unrelated diversification on firm value seems to be true only when unrelated diversification reaches to a certain level.

This result is similar to findings of Lien and Li (2013) when Lien and Li (2013) also determined a certain amount of diversification level at which the contribution of diversification to firm performance transferred from positive to negative direction. In this study, the direction alters when diversification level is over the sample mean (0.164).

Table 4: Regression results on the relationship between diversification and firm value for two set of data (30 firms with high diversification levels and 40 firms with low ones)

FDiv → Tobins q	Case 1: Firms with low diversification level			Case 2: Firms with high diversification level		
	Pooled OLS	FEM	REM	Pooled OLS	FEM	REM
Coef.	0.893	2.288	1.108	-0.189	-0.348	-0.257
Std. Err.	0.792	0.885	0.855	0.256	0.315	0.275
p-value	0.260	0.010	0.195	0.461	0.271	0.350
Number of obs	320	320	320	240	240	240

Source: own creation

CONCLUSION

The paper tested the impact of conglomerate diversification strategy on firm value in case of Vietnam, a developing country in Asia. The results showed a statistically insignificant relation between unrelated diversification level and firm value at 5% level of significance. The reason may be that during the period 2007 – 2014, unrelated diversification levels of listed companies were too low with the average diversification level for each company at 0.164. This low average unrelated diversification level can be partly explained by ownership structure features of listed companies in Vietnam. The majority of listed firms in Vietnam had a large amount of shares owned by the State; and these firms tended to adopt other growth strategies such as vertical growth, horizontal growth or concentric diversification instead of conglomerate diversification strategy in order to avoid risks.

With such low levels of unrelated diversification, it might be not absolutely bad, or even good, for the firms if they decided to be diversified more into new unrelated industries. Therefore, the research could not confirm non-benefits of unrelated diversification strategy in this case.

However the negative direction of the correlation coefficients of firm diversification and Tobin's q to the sample of 30 firms with high diversification levels (that are greater than 0.164) can be a good reference for future researches. The researches afterwards can re-test this relationship in periods that are different from the period 2007 – 2014 that the author selected or re-test through a larger sample size.

This study discovers a research gap on determining a maximum threshold of conglomerate diversification level at which this strategy become counter-productive. When looking at the negative

direction of the correlation coefficients of firm diversification and Tobin's q to the sample of 30 firms with high diversification levels in comparison with positive correlation coefficients in the sample of 40 firms with the low extent of diversification, it can be recommended that implementing conglomerate diversification strategy of a company should be revised when unrelated diversification level reaches to its certain maximum amount. Hence, it would be important for a firm to catch this maximum level so that counter-productive effects of the conglomerate diversification strategy can be prevented. Determining this maximum threshold calls for future researches.

As other researches, this research also contains some limitations. The sample size of this research was 70 listed companies over the periods 2007 – 2014 because of the availability of the data in Vietnam during this period. This sample was not too large among the total of 134 listed firms that have listing dates from 2006 onwards. Thus, forthcoming researches can re-test similar relationships between diversification and firm value in other sampling frames. For instance, non-listed shareholding companies in Vietnam can be selected or the new sample frame will be listed firms during the period from 2015 to 2020 when the new Enterprise Law No. 68/2014/QH13 takes effect.

Nguyen Thi Xuan Trang
trangntx@due.edu.vn
The University of Danang

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