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## The Impact of Business Diversification on Performance of IDX Listed Firms

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*This study analyzes the correlation between business diversification and performances in Indonesian listed companies from 2006-2011. In addition to observing business diversification impact on company's performance in term of Return on Assets (ROA) and Tobin's Q, this research also observes the business diversification impact on the performances of different companies at different level. The result of this research indicates that diversification gives negative effect to ROA and Tobin's Q, while for higher level of diversification, the effect on Tobin's Q is relatively high. The negative effect of diversification on ROA is higher in the group of companies with higher ROA. The different results show that when using Tobin's Q as a measure of companies' performances, diversification gives negative impact to companies' performance in the intermediate level.*

**Keywords:** *Diversification, companies' performance, ROA, quantile regression, Tobin's Q*

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### Introduction

The end of the 20<sup>th</sup> century was closed with record-breaking level of mergers and largest acquisitions since Dollar value of mergers around the world reached USD 2.3 billion in 1999 and the average merger grew over 20% between 1985 and 1999, where most of the activities were strategic measures as the companies held mergers and acquisitions of other companies engaged in different industries to enter new market and expand their businesses (Martin and Sayrak, 2003). Business diversification is the company's effort to engage in multiple business lines or expand its business in different industries, therefore the company seeks benefits from the economies of scale and economies of scope when operating in diverse industries (Teece,

1982). On the other hand, diversification can also be followed by internal governance costs while managing the company with many business lines (Roberts and Milgrom, 1995; Rajan et al., 2000).

Several previous studies have tried to examine the correlation between diversification and company's performances, but the empirical evidences are still contradictive. The results of Stulz (1990), Lang and Stulz (1994), Berger and Ofek (1995), Servaes (1996), Lins and Servaes (1999), Rajan et al. (2000), Campa and Kedia (2002), and Martin and Sayrak (2003) found a negative correlation between diversification and company's performances. Meanwhile, the results of Maksimovic and Phillips (2002), Gomes and Livdan (2004) as well as Santalo and Becerra (2008) found a positive correlation

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between diversification and company performances. Recent research has tried to find the difference in correlation between diversification and performances in different companies. For example, Lee and Li's study (2001), which saw the correlation between diversification and performances is not linear or inconsistent on different level of company's performances. The result shows that diversification was negatively related to Return on Equity (ROE) when the company posted good performance and gave positive correlation to ROE when the company posted poor performances. They assumed a negative correlation between diversification and company's performance disappears and become positive as poor company's performance.

This research aims at reexamining the diversification effects to company's performances by using developing country context such as Indonesia. Most of previous studies used developed countries context, thus the research in developing countries could enrich knowledge of correlation between diversification and performance (Yiu et al., 2005). There are many diversified companies in Indonesia, and the decision to apply diversification strategy is important considering that there are some conglomerate groups in Indonesia that play major role in the national economy.

In Indonesia, the study about diversification effect is still limited; one of them was conducted by Harto (2005), who found that diversification could reduce company's value. However the study only observed linear correlation between diversification and company's performances. This research attempted to close the gap, by looking at the possibility of non-linear correlation between diversification and performances and ignore that in certain performance range there is different correlation at certain performance levels.

## Literature Review

Previous studies tried to observe the diversification effects to company's performance. One of the arguments stated there is positive impact of diversification to the company, the diversification make the company able to create internal

capital market. Diversified company is more efficient in allocating resources as it is able to generate internal capital market and make more efficient resources allocation (Weston, 1970) and able to reduce investment shortage (Stulz, 1990). Another argument is a diversified firm is more efficient (Chandler, 1997) and more productive compared to a company focusing on one area. They concluded that diversification did not disturb company's value (Maksimovic and Phillips, 2002; Gomes and Livdan, 2004)

On the other hand, diversification also contained some disadvantages that have been found by researchers. In term of capital allocation, Stulz (1990) assumed that diversified company invested too much in low investment opportunity business lines. In accordance with the statement, Jensen (1971) stated that more diversified companies invested in unprofitable projects. Scharfstein and Stein (2000) argued that by operating in many business lines, a firm can increase costs as increasing incentives for managers.

Rajan et al. (2000) argued that agency cost model can explain investment deviation in diversified companies. Then according to Meyer et al. (1992), there is an influence of cost as a result of division manager who tries to affect to management to allocate resources to the division, it's considered to increase company's costs.

Moreover, Lang and Stulz (1994) found that diversified companies have lower Tobin's Q mean and median than focused companies. They also found that diversification has a negative correlation with the company performances. It is inferred based on their findings that diversified companies have lower performance than focused companies. They assumed that diversified companies seek growth by diversifying as there is no more growth in their businesses. Lang and Stulz (1994) also added that diversified companies in the related business activity are able to use their current skills. Therefore, these firms have comparative advantages in their business activities, while diversified companies non-related activities do not have advantages, thus they post lower performances.

Meanwhile, Berger and Ofek (1995) found that diversification reduced company's value. They argue diversified companies have lower profitability than focused companies. They also found that excess investment related to lower diversified companies and business segment of diversified companies more frequently spent excess investment than a company with one business line. Berger and Ofek (1995) also added the subsidy in the lower segments as value reduction suffered by diversified companies.

In addition, Martin and Sayrak (2003) concluded that diversification destroys shareholders value. It was based on previous studies' findings have outlined, which diversification reduces company's value, and it disservices shareholders. This conclusion is supported by some evidences, such as diversified companies tend to have lower Tobin' Q value, diversified companies traded up to 15% discount when compared to focused companies value, and the stock market tends to well respond over an increase in focused companies. They also said diversified companies' low performances are motored by capital misallocation. They assumed it is caused by inefficient internal fund raising allocation or agency problems. The misallocation also made cross-subsidies, where the company's investment in a weak division was supported by cash flows from a stronger division.

However, there are also other studies which found that diversification can improve company's performances, but at a certain point it actually degrade company's performance. Qian et al. (2008) showed that regional diversification has a positive effect on company's performances at the secondary level, after that it gave negative effect. They also found that developed countries can maximize their performance if their diversify into a number of developed countries and restrain a number of developing countries. As for market potential problems, infrastructure, and economic development, these differences are important to be considered among developing regions. Costs and risks can be a problem if the company operates in developing regions. Researchers such as Borghesi et al. (2007) found that the company's decision to diversify can have different impact on compa-

ny's value, depending on age of the company. The result indicated that the major company in stagnant industry has more advantages by conducting diversification.

The other study was conducted by Lee and Li (2012), who tried to find the correlation between diversification and company's performances in different level of performances. They found that negative correlation occurred in the high performance companies, while for low performance companies, the correlation is positive. They assume that negative correlation between diversification and company's performance in high performance companies is in accordance with the assumption that high performance companies, which are profitable companies, are better to maintain their market niche rather than diversify. Meanwhile, positive correlation on low performance companies indicated that companies in declining phase can increase their income by diversifying and expanding to seek benefit from economies of scale and economies of scope.

## Research Method

### Data and sample

The sample used in this study are listed companies in Indonesia Stock Exchange in 2006-2011 and not operating in the financial sector. The companies must also report their business segments with two digit minimum code of North American Industry Classification (NAICS) code. If the difference between total company's segment sales with company's sales is not more than 10%, then the respective company will be removed from the sample. If the absolute deviation of total segment sales under company's sales by 5%, thus the author re-weight based on deviation percentage between total sales and total segment sales. The data were obtained from Datastream. The data in this research were derived from variety of sources, namely Indonesia Stock Exchange, Thomson Reuters Eikon, and Reuters Datastream, result of previous studies, journals, and related articles. The result found that there are 215 companies that meet the above criteria.

## Research model and variables

This study uses quantitative data analysis for panel data. There are two main models, the first model is used to see the relationship between diversification and company performance and the second model is used to examine linear relationship between diversification and performance. Each model uses two performance measures such as ROA and Tobin's Q. The specifications for both models are as follow:

### Model 1.1

$$ROA_{it} = \beta_0 + \beta_1 DIV_{it} + \beta_2 (SIZE)_{it} + \beta_3 (DEBT)_{it} + \beta_4 (EBIT/Sales)_{it} + \beta_5 (Capex/Sales)_{it} + u_i \quad 1)$$

### Model 1.2

$$Tobin's Q_{it} = \beta_0 + \beta_1 DIV_{it} + \beta_2 (SIZE)_{it} + \beta_3 (DEBT)_{it} + \beta_4 (EBIT/Sales)_{it} + \beta_5 (Capex/Sales)_{it} + u_{it} \quad 2)$$

### Model 2.1

$$ROA_{it} = \beta_0 + \beta_1 DIV_{it}^2 + \beta_2 (SIZE)_{it} + \beta_3 (DEBT)_{it} + \beta_4 (EBIT/Sales)_{it} + \beta_5 (Capex/Sales)_{it} + u_{it} \quad 3)$$

### Model 2.2

$$Tobin's q_{it} = \beta_0 + \beta_1 DIV_{it}^2 + \beta_2 (SIZE)_{it} + \beta_3 (DEBT)_{it} + \beta_4 (EBIT/Sales)_{it} + \beta_5 (Capex/Sales)_{it} + u_{it} \quad 4)$$

Meanwhile, the third model is used to examine whether the performance level affects the correlation of diversification and performance. This model will be estimated by using quantile regression. The specification of third model is as follow:

### Model 3.1

$$ROA_{it} = \alpha_{it} + \beta_n X_{it} + u_{it} \quad 5)$$

$$QROA(\tau|X) = \alpha(\tau) + \beta_n(\tau)X \quad 6)$$

where the  $X$  is independent variables ( $DIV$ ,  $SIZE$ ,  $DEBT$ ,  $EBIT/sales$  and  $Capex/Sales$ ) that

used in this research and  $QROA(\tau|X)$  described conditional quantile of  $ROA$  to  $\tau$ , which is assumed to depend (nearly dependent) on  $X$ .

Model 3.2 is used to observe diversification effect on company's performance based on Tobin's  $Q$  value of the company, which will be estimated using quantile regression. The quantile regression method developed by Koenker and Basset (1978) by publishing a journal entitled "Quantile Regression". Koenker and Basset (1978) argued that this method could estimate linear correlation between the independent variables  $X$  and certain quantile of dependent variables  $Y$ . Therefore, based on Hasibuan (2010) this method allows researchers obtain different marginal effect for each quantile. This method can be used to analyze not normal data distribution. It is also an advantage compared to least square method.

### Model 3.2

$$Tobin's Q_{it} = \alpha_{it} + \beta_n X_{it} + u_{it} \quad 7)$$

$$QTobin's Q(\tau|X) = \alpha(\tau) + \beta_n(\tau)X \quad 8)$$

## Research variables

$ROA$  is the dependent variable to measure company performance based on accounting earning based. The accounting earning based to measure company performance has been widely used by previous researchers (Grant et al., 1988; Khana and Palepu, 2000; Cheng and Farber, 2008). Accounting based performance measure is an important, both for internal and external to conduct evaluation (Gaver and Gaver, 1998). In addition, equity price based on the market does not always reflect operating performance and company value (Lee and Li, 2012).

$Tobin's Q$  is a dependent variable to measure market based performance following previous studies (Lang and Stulz, 1994; Servaes, 1996; Khana and Palepu 2000; Campa and Kedia, 2002; Santalo and Becerra, 2008).  $Tobin's Q$  reflected what the market is thinking and diversification advantages. Therefore,  $Tobin's Q$  also can be interpreted as investors' view to a company, if the investor assume the company is good, then  $Tobin's Q$  value will be higher (Lang and Stulz, 1994).



Table 1. Variables definition

Variables	Explanation	Measurement
Dependent		
<i>ROA</i>	Accounting based measure	Net income / total asset
<i>Tobin's Q</i>	Market based measure	(market value of equity+book value of preferred stock+book value of debt) / (book value of asset)
Independent		
<i>DIV</i>	Diversification measurement	1 – sales revenue based on Herfindahl index
<i>DIV<sup>2</sup></i>	Diversification measure that move exponentially	(1 – sales revenue based on Herfindahl index) <sup>2</sup>
<i>SIZE</i>	Measure of company size	Natural logarithm of total asset
<i>DEBT</i>	Measure of leverage	Total liabilities / total asset
<i>EBIT / Sales</i>	Measure of operational profitability	Earnings before interest and taxes / total sales
<i>Capex / Sales</i>	Capital expenditure ratio	Capital expenditure / total sales

Table 2. Descriptive statistics

Variabel	Mean	Std. dev.	Max	Min
<i>ROA</i>	0.0388	0.0843	0.3710	-0.4039
<i>Tobin's q</i>	1.2530	1.200	10.3300	0.1650
<i>DIV</i>	0.1376	0.2003	0.7187	0.0000
<i>DIV<sup>2</sup></i>	0.0590	0.1097	0.5165	0.0000
<i>SIZE</i>	20.9410	1.5800	25.3028	16.3062
<i>DEBT</i>	0.2663	0.2514	2.0245	0.0000
<i>EBIT/Sales</i>	0.1094	0.3544	5.7433	-2.1384
<i>Capex/Sales</i>	0.1200	0.4699	11.5049	0.0000

Table 3. Correlation between variables

	<i>Tobin's Q</i>	<i>DIV</i>	<i>SIZE</i>	<i>DEBT</i>	<i>EBIT/Sales</i>	<i>Capex/Sales</i>	<i>DIV<sup>2</sup></i>	<i>ROA</i>
<i>Tobin's Q</i>	1.0000							
<i>DIV</i>	0.0054	1.0000						
<i>SIZE</i>	0.0662	0.1469	1.0000					
<i>DEBT</i>	-0.4119	-0.1003	0.0195	1.0000				
<i>EBIT/Sales</i>	0.0564	0.0573	0.1827	-0.0598	1.0000			
<i>Capex/Sales</i>	0.0644	0.0685	0.0522	-0.0104	0.0206	1.0000		
<i>DIV<sup>2</sup></i>	-0.0049	0.9628	0.1660	-0.0755	0.0634	0.0549	1.0000	
<i>ROA</i>	0.4778	-0.0031	0.1788	-0.4409	0.4638	-0.0457	0.0073	1.0000

*DIV* is a diversification measurement based on Herfindahl index obtained by 1 minus Herfindahl index. If the company only has one segment thus *DIV* value is 0 and if the company has 10 segments and each segment has 10% sales of total company's sales, then Herfindahl index is 0.1 and *DIV* is 0.9. *DIV<sup>2</sup>* is the squared value of diversification to see non linear effect of diversification conducted by the company. It is reflected that additional diversification can make an increase and whether at same point it will lead to decreased performance.

Furthermore, the control variables are used to accomodate several variables that can affect company's performance such as company size (*SIZE*), company leverage level (*DEBT*), profitability level (*EBIT/Sales*) and capital expenditure (*Capex/Sales*).

## Result and Discussion

Panel data analysis is used to process data from the samples. Table 2 shows the descriptive statistics of samples used in this study. Table 3 shows the correlations between variables are not strong enough or no correlation is above 0.80, except correlation between *DIV* and *DIV<sup>2</sup>* which has a value of 0.9628. This is reasonable because *DIV<sup>2</sup>* obtained by squaring *DIV* value, despite both variables were not used simultaneously in one model.

The Hausman test suggests the use of Fixed Effect panel data model. However, the regression is performed by using Generalized Least Square model to overcome heteroscedasticity and autocorrelation.

Table 4. Result of panel regression

	Model 1.1	Model 1.2	Model 2.1	Model 2.2
<i>Constant</i>	-0.0862**	-0.1721	-0.0881**	-0.2946
<i>DIV</i>	-0.0276*	-0.4276***	-	-
<i>DIV</i> <sup>2</sup>	-	-	-0.0386	-0.6821***
<i>SIZE</i>	0.0075***	0.0632***	0.0075***	0.0678***
<i>DEBT</i>	-0.1153***	-0.0319	-0.1149***	-0.0217
<i>EBIT/Sales</i>	0.0307***	0.0389***	0.0307***	0.1116***
<i>Capex/Sales</i>	-0.0045	0.1419***	-0.0047	0.1186**
Adj. R <sup>2</sup>	0.2152	0.0856	0.2142	0.0789

\*Significant at  $\alpha = 10\%$ \*\* Significant at  $\alpha = 5\%$ \*\*\*Significant at  $\alpha = 1\%$ 

Table 5. Result of quantile regression (diversification on the company's performance)

Quantile	Model 3.1	Model 3.2
0.05	0.0301	0.0247
0.10	-0.0125	0.0779
0.15	-0.0155	0.0528
0.20	-0.0126	0.0245
0.25	-0.0205**	0.0056
0.30	-0.0208***	-0.0654
0.35	-0.0250***	-0.0435
0.40	-0.0250***	-0.0576
0.45	-0.0286***	-0.0943
0.50	-0.0364***	-0.1565
0.55	-0.0412***	-0.2642**
0.60	-0.0461***	-0.3990***
0.65	-0.0407***	-0.5574***
0.70	-0.0397***	-0.6882***
0.75	-0.0444***	-0.4416
0.80	-0.0516***	-0.5911
0.85	-0.0473***	-0.7105*
0.90	-0.0649***	-0.2971
0.95	-0.0825***	-1.3112

\*Significant at  $\alpha = 10\%$ \*\* Significant at  $\alpha = 5\%$ \*\*\*Significant at  $\alpha = 1\%$ 

While going through the quantile regression results in Table 5, it can be seen that there is a different relationship between diversification and the company performance at various performance quintile level. It can be seen from the increasing negative influence from diversification over the company's performance along with increasing level of corporate performance within the range of 0.25 quantile to 0.95 quantile. This suggests a negative relationship between diversification and the company's performance that can be explained using the BCG Matrix and the Grand Strategy Matrix, in which diversification strategy is used by companies that have a low market or industry sales growth, while in fact Indonesia is an emerging market that still has high growth, therefore diversification will make

the company loose focus on their market niche. Diversification decisions can make a company loose the benefits from the industry that still has the potential growth that can degrade the companies' performance. Other findings from the above results show that the performance measurement using *ROA* indicates that a diversified company tends to invest in unproductive assets, so an increase in assets does not guarantee an increase in revenue, so this will degrade the performance of the company. Model 3.2 shows that for the companies with relatively high performance (quintile 0.55, 0.60, 0.65, 0.70, and 0.85), the diversification makes investors' view on the company will be negative. This indicates that for the company that has already a high performance, then will diversify, potential rev-

enue loss is still huge from the current market and will reduce profitability.

This result is not in line with the findings of Lee and Li (2012), who found that the relationship between diversification and different performance of companies within *ROE* quantile range from 0 to 1, where diversification is negatively related to *ROE* when the company's performance is good and it is positive with *ROE* when the performance is poor. However, the findings of the authors are in line with studies conducted by Lang and Stulz (1994), Berger and Ofek (1995), Lins and Servaes (1999), Rajan et al. (2000), Campa and Kedia (2002), and Martin and Sayrak (2003), which found a negative relationship between diversification on the company's performance

From the analysis of the regression result in the previous discussion, it can be seen that the least squares method only gives linear results between diversification and performance as seen in Table 4. According to Lee and Li (2012), the least squares estimator only focuses on the central tendency of the distribution. Therefore, this method does not allow researchers to see the relationship between diversification and performance of the companies that are on the non-central area.

By looking at the results of this study, the authors found that the relationship in diversification of the company in Indonesia has a pattern which decreases along with an increase in the performance of the company, where the higher performance of a company, the greater the negative effect of diversification on the performance of the company due to various factors as claimed by Stulz (1990). Stulz (1990) argued that a diversified company invests too much on the business lines that have low investment opportunities. Jensen (1971) claims the diversified company mostly invests in unprofitable projects. There is a negative relationship from the diversification on the performance, while Scharfstein and Stein (2000) argued that the various business lines which are operated by a company will increase operational cost as incentives for managers is higher, and agency cost factor proposed by Rajan et al. (2000) is included.

In addition, Martin and Sayrak (2003) concluded that diversification has a negative impact, because based on their findings, a diversified company has problems with inefficient capital allocation. Inefficient capital allocation, according to them, is caused by the inefficiency in internal funds that led to the unfavorable investment. The existence of inefficient capital allocation also leads to cross subsidies between divisions, the weak divisions will be supported by a stronger division. Meyer et al. (1992) also argued that there are still other problems from the diversification which influence cost due to the charge made by division managers who seek to influence top management in order to channel the resources of the company in their division. It will also lead to unfavorable investment, since divisions held by managers who influence the top management have a business that is not necessarily beneficial, as the effort in channeling these resources is to influence the top management.

## Conclusion

The result of data analysis in this study indicates that the diversification strategy has a negative relationship with company's performance, either by using the measurement values of ROA and Tobin's Q. The effect of diversification claimed by Tobin's Q is more sensitive, so the addition of diversification on a certain level will drastically degrade the company's performance. Furthermore, the negative effect of diversification on ROA is greater in the group of companies with relatively high ROA. The different result occurs if we use Tobin's Q as a measure for the company's performance, which is diversification leads to negative impact on the company's performance for a group of companies with a high performance level.

Afterward, using ROA measurement, in a company that has a relatively low level of performance, the negative effect of diversification strategies on the performance of the company is smaller than a company with relatively high performance. Using Tobin's Q as the measurement of the company's performance on the intermediate performance level group, the diversifica-



tion negatively affects performance (Tobin's Q) and the negative effect continues to increase in parallel with the increase in the performance of the company. The next study is expected to exemplify the importance of the corporate governance component on the research model. The latest study on diversification and the company's performance indicates the importance of the role of corporate governance and the ownership structure in affecting the role of diversification on the company's performance (Hoechle et al., 2012; Chen and Yu, 2012). Corporate governance is an important issue in the management of companies in Indonesia, so the next study needs

to discuss it. The weaknesses of this study is related to the issue, whether endogenous diversification affects the performance or performance affects the decision on the diversification process. The study assumes that diversification affects performance of the company. Previous studies show the influence of the company's performance against the strategy of business diversification lived by the company. Campa and Kedia (2002) argue that the company's decision to diversify its business is a response to external factors influenced by the change in environmental conditions that also affects the company's enterprise value.

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