

SIZE, RETURN AND PUBLIC COMPANY'S PERFORMANCE: A STUDY SMALL AND LARGE COMPANIES ON IDX DURING 3 ECONOMIC-PERIODS

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ABSTRACT

The main objective of this research is descriptive analysis of stock return associated with firm size. The size of listed firms is classified into two main categories; small and large. The statistical results show that the size of firms have positive correlation with return, although the correlation level is relatively weak. This research was conducted during the period of year 2001 to 2014. From this research, it finds that large size firms yielded higher return than smaller ones, and also yielded higher risk. During the crisis period, both small & large firms yielded positive return, but large firms yielded higher return than smaller ones. During the pre-crisis and post-crisis period, both firms yielded positive return. This result is consistent with the findings during the in-crisis period where large firms yielded higher return than smaller firms. The implication of this research is investment portfolio in large firms is more profitable than smaller firms in any economic-cycle environment.

Keywords: Size, Small Firms, Larges Firms, Return Portfolio.

INTRODUCTION

The financial crisis is unavoidable economic phenomenon. In 2008 financial crisis began with the subprime mortgage crisis in the AS. The impact of the crisis has spread to various parts of the world and fell down all stock indexes including Indonesia. In crisis, investors try to keep getting positive margins from their investments in the capital market. Portfolio strategies in small or large companies that can be considered. Several study found that the Small companies produce higher returns than large companies. Different from the pre-crisis and post-crisis period, the dynamics of the Indonesian economy were high with a stable exchange rate, declining inflation, the capital market index increased, and a high balance of payments surplus. Economic stability encourages domestic and foreign investors to invest in Indonesia.

Portfolio and diversification are strategies can be employed to reduce investment risk in capital market. Investment portfolio may be formed in the wide variety of assets or asset classes. Various researches in portfolio has been conducted in many global stock markets. One research conducted by (Jonas, 2015) in German Stock Market, it indicates that *value strategies* generates better performance than *growth strategies*. (Fama & French, 1998) developed a research on *value strategy* in 13 stock markets across the globe, and they concluded that *value stock* portfolio yielded higher return than glamorous stock in 12 (out of 13) stock markets during the period 1975 to 1995. Another investigation was conducted by (Walid Saleh, 2005), and analyzed data from Aman Stock Exchange from 1980 to 2000. He merely found some advantages of *small stock* towards *big capital stock*. The Brandes Institute an active institution who update their research on the value and glamor of the company. The method used to determine the value and glamor of the company by using a stock portfolio approach sorted based

on Price to Book Value parameters into 10 groups (Desile) where the Desile 10 (lowest PBV) is a portfolio of Value and Desile 1 shares (highest PBV) is a portfolio glamor stock. This research will use a similar approach, in determining of small and large companies.

It's an interesting phenomenon to see that investment in *small firms* in some countries supports the growth of one nation and open a lot of opportunities for society (Ayyagari et al., 2007). Additionally, small firms can generate higher average return than big capitalized firms, (Bostrom & Petersson, 2011). In February 2015, Wall Street Journal recorded that small firms price experienced increases during previous three months compared to large firms in Russell 2000 index. Additionally, American investor shows a new interest towards *small firms* because the stocks are perceived to grow along with economy. This assumption was supported by the research from Morning Stock Research (2011 & 2016), which found that portfolio investment performance on small cap stock for each \$1 invested for 30 years (1975-2005), that portfolio can generate better performance than medium and large cap stock portfolio in generating both return and risk minimum. Tudor et al. (2014) developed a research on stock portfolio at Bucharest Stock Exchange *return* and found the return average per month from SME portfolio was around 2.10% higher than Large Cap Portfolio by 1.25% and higher than market portfolio by 0.56%.

A study conducted by Prasad & Verma, (2013) in India stock exchange found that company size wasn't correlated with stock return. However, a study conducted by (Tan, 2012) found that company size was correlated with company profitability. The study found that company size has significant influence on company's return. Small firm's stock tends to have lower earning than large firms. But, another observation found that large firm had higher yearly return than small capitalization firm during in-crisis period, (Bostrom & Petersson, 2011). During economic downturn (crisis), small size firms generated superior return compared to large size company. This result has been a contentious issue, and no clarity if this contentious issue will last temporarily or will be a long-lasting debate.

Based on the investigation outcomes from previous observations and from current facts in current exchange markets, it's interesting to do a research on the return of small size firms and large size firms on Indonesia Stock Exchange (IDX). This research is in the position to refute and argue capital market efficiency concept. This firm size information can be used to generate abnormal return; something which can't take place in the efficient market hypothesis. Information about firm size is historical information that can't be accessed by public easily. Nevertheless, Size Anomaly concept says that small size firm can generate higher return than the large size company. This study also aims to look at the portfolio returns of small and large companies before the pre-crisis period (2001-2006), during the in-crisis period (2007-2009), and post- the crisis period (2010-2014).

RESEARCH ISSUE

According to the background of this research and observation in this research, it is found that firm size shows a phenomenon where small size firms yield higher return compared to large size firms. Further, Fama & French (1992) found that risk is a factor that may explain the higher return generated by smaller firm. Observation from Pandey & Sehgal (2016) explained the higher risk from small firm is caused by several factors. One of the factors is economic condition, poor diversified products, inefficient labors, low bargaining position, less developed technology, less royal customer, and less committed employees. On top of that, operation risk from small firm is higher because it has higher financial risk caused by more expensive *cost of debt*. This research contemplates to prove the existence of anomaly resulted from firm size. *Size*

Effect reflects phenomenon of small firm that generates higher return compared to large firm. Hence, a strategy to select portfolio based on *Size Effect* will generate outperforming return in the 3 economic condition.

LITERATURE REVIEW

Firm size is a measure that indicates how big the firm is. The size of firm is typically measured from the total asset size and market capitalization. The higher the total asset and market capitalization, the bigger the firm is. Some researches defined with different methods. (Dermott & D'Auria, 2014) did classification by referring to (Fama & French, 2012) who mainly consider the value of firm's stock capitalization. In this case, small firm and large firm are distinguished from its median value of stock capitalization in NYSE. Another research conducted by Barbee (1996), it shows that the size of firm has a negative impact towards stock return, and this research measures the size of firm from its *Market Value Equity-MUE*.

Size Effect Anomaly is firstly introduced by Banz (1981) in the United States' stock market and supported by the research from Reinganum (1981). Banz found a negative correlation between firm size and stock return. It means, small firm's stock will generate higher return compared to stock from large firm. Additionally, stock with small equity market value will outperform large firm's stock return. This phenomenon is known as *Size Effect Phenomenon*. On the other hand, stock with high *Book-to-Market Equity* value outperforms the return from stocks with low *Book-to-Market Equity* value. This phenomenon is known as *value effect*.

Fama & French (1992) developed a research during the period from 1963 to 1990 and they found the role of Beta in explaining stock's return isn't that significant. Additionally, stock with low *market equity value (small firm)* outperformed return of stock from large firm, and this is regarded as *Size Effect* phenomenon. On the other hand, return of stocks with high *book-to-market equity* value outperformed return of stock with *low book-to-market equity*. This phenomenon is known now as *value effect*. The research done by Barbee (1996) also shows the same results; the size of company has negative correlation with stock's return. Barbee also measured the size of company from its *Market Value Equity-MUE*.

Small size firm's stock at growing phase is riskier because it is financially weaker than larger firm. However, small company has bigger potential to grow. This tenet is supported by (Merkel, 2016), the growth of small and big firm's return can be seen from the history of American companies since 1926 and multinational companies since 1970. The performance of small capitalization firms outperformed big capitalization performance in United States and other international stock exchanges. Smaller firms will be riskier than bigger firms from time to time because they are not as strong as bigger firms. Supported by a research conducted by (Vanden, 2015), he found that higher level of risk will generate higher return. Also, small firms will generate higher risk compared to larger firms. Why small firm is riskier than larger firm? Because some risks related to small firm is about the difficulty of small firm to source funding and the inferior market share or less reputable brand (Duy & Phoac, 2016). Another argument says that small firm is a candidate for riskier borrower from banks, lower operation level, fewer employees, lower level of inventory and less track record.

Generally, smaller firm stock tends to generate higher return than larger company firm, and this phenomenon is well regarded as *Size Effect*. The predecessor research on *small firm* performance and *larger firm* performance, this concluded that small firm performance is better than larger firm, (Bostrom & Petersson, 2011). Criteria used in this research was Index Performance Sharpe, Trenor and Jensen. Further, (Fama & French, 2012) conducted a research

on 4 regions (North Amerika, Europe, Japan, Asia Pasific). Except in Japan, all small firm stock generated high premium value than average stock. A research from (Duy & Phuoc, 2016), this also showed the size of firm had a negative impact towards stock's return. It means size parameter that measures whether one firm is big or small, has negative correlation with stock return. Small firm will generate higher return. Likewise, large firm will generate lower return. (Al-khazali & Zoubi. 2011), asserted *market value of equity* could be a proxy for one firm's size measure.

It's different from what happened in the United States in 1980, stock of small firm had tendency to generate lower earnings than larger firm. *Size Effect* is associated with earnings because of high possibility of small firm's stock to generate lower earnings, particularly during the recession and high capital company will generate higher annual returns compared to smaller capitalization firms. Based on the literature review above, it can be said that stock returns have a relationship with company size.

RESEARCH METHODOLOGY

Firm size is a measure of how big or small is regarded and the value of market capitalization of one company Al-khazali & Zoubi (2011). Small size is the first tenth decile from a group of firms with the highest market capitalization from 31 December 2015 (IDX, Fact Book, 2016). Then, small size and large size firms are separated by using dummy variable. Large size firms using dummy 0 (null) and small size firms using dummy 1 (one).

Data research is a secondary data and ratio scale of IDX from year 2001 to 2014. Observation was conducted on yearly stock-price which is a base for calculating yearly return. Annual return was calculated from closing-price every end of year (*End of wealth period*). From overall registered stock on 31 December 2015, there are 525 firms (IDX Fact Book, 2016) sorted from the highest to lowest capitalization, then it's classified into 10 deciles. The first decile is the largest size (*large size*) and the tenth decile is the smallest size (*small size*).

This research was conducted by using correlative statistic model to see the correlation between return and firm size. The equation used in this research is:

$$\text{Return} = a + b \text{ Firm size} + et$$

Descriptive analysis will be conducted to answer the research objectives, to explain big-small firm's portfolio performance during the period of research, before the pre-crisis period (2001- 2006), during the in-crisis period (2007-2009) and post-crisis period (2010-2014), Aizenman et al. (2014); Yesin (2015).

RESULTS

The result of statistic calculation shows that size of firm has a positive and significant correlation towards the return with variation of coefficient 8%. It means the correlation between size and return exists, although the level of correlation is low (as shown in Table 1). This relationship can explain that companies with large size will provide a large return as well. This result is in contrary with what was found by (Duy & Phuoc. 2016; Al-khazali & Zoubi. 2011); the correlation of size and stock return is negative.

Table 1 CORRELATIONS RETURN & SIZE			
		RETURN	DSIZE
Pearson Correlation	RETURN	1.000	0.079
	DSIZE	0.079	1.000
Sig. (1-tailed)	RETURN	0.000	0.010
	DSIZE	0.010	0.000
N	RETURN	855	855
	DSIZE	855	855

Source: calculated data

The result of Descriptive Statistic Calculation in Table 2 shows the yearly average portfolio return during research period from large company was 0.4489 or 44.89%, with standard deviation 1.4089 or 140,89%. And, the average yearly return of small companies was 0.2212 or 22.12%, with standard deviation 1.46072 or 146.072%.

Table 2 DESCRIPTIVE STATISTICS							
	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
RETURNLARGE	414	-0.92	13.00	0.4489	0.06924	1.40892	1.985
RETURNSMALL	441	-0.94	21.78	0.2214	0.06956	1.46072	2.134
Valid N (listwise)	414						

Sumber: data calculated

Six year before the crisis period 2001-2006, the average portfolio return of big firms was higher than small firms. In 2007-2009 when crisis was about to happen in United States and about to impact Indonesia until the crisis in 2008 and continued to 2009, large firms were better in generating return compared to small size firms. This condition kept continuing until the post-crisis period 2010-2014. During that period the portfolio return from large company remained higher than small company. Likewise, the standard deviation of portfolio during the pre-crisis, in-crisis and post-crisis was higher for large firms and lower for smaller firms (Table 3). Statistically, the three economic conditions generated positive return but during the pre-crisis and post-crisis period, large firms had better performance compared to small company. During the crisis, both large company and small company generated positive return. From risk perspective, during pre-crisis, in-crisis and post-crisis period, the small company was riskier. In this case, smaller company's Coefficient Variance (CV) was higher than bigger company (Table 4).

The portfolio performance using the sharpe index model (Table 5). Portfolio performance of large firms was better than smaller firms ($0.2547 > 0.0900$ or $25.47\% > 9\%$). In comparison, risk free rate return, portfolio performance of small company was positive 0.13148 (13,15%). Meanwhile, the portfolio performance of large company was higher than risk free rate by 0.3589 point or 35.89%.

Table 3 DESCRIPTIVE STATISTICS: RETURN AND RISK BEFORE, AFTER, AND CRISIS PERIOD LARGE & SMALL CAP					
	N	Minimum	Maximum	Mean	Std. Deviation
Return Large 2001-2006	150	-0.81	8.86	0.4360	1.20578

Return Large 2007-2009	85	-0.86	13.00	0.6556	2.11716
Return Large 2010-2014	177	-0.92	11.50	0.3615	1.11591
Return Small 2001-2006	175	-0.94	8.50	0.0752	1.06574
Return Small 2007-2009	94	-0.79	21.78	0.5727	2.62994
Return Small 2010-2014	162	-0.83	3.65	0.1813	0.67916
Valid N (listwise)	2				

Source: data calculated

**Table 4
COEFICIENT OF VARIATION OF THREE ECONOMIC PERIOD LARGE & SMALL CAP**

PERIOD	Coefficient of Variation Large	Coefficient of Variation Small	Description
Before Crisis 2001-2006	2,7653	14,1720	Small portfolio is more risky
Crisis 2007-2009	3,2300	4,5921	Small portfolio is more risky
After Crisis 2010-2014	3,0868	3,7640	Small portfolio is more risky

Source: data calculated

Coefficient of Variation (CV) = Return Standard Deviation / Average Return

**Table 5
SHARPE INDEX & COEFFICIENT VARIATION PORTFOLIO**

	Average Return	Standard Deviation Return	Average of Interest Rate FRB SBI	Sharpe Index	Coefficient of Variation (CV)
Large	0.4489	1.40892	0.089921	0.2547	3.138
Small	0.2214	1.46072		0.0900	6.597

Source: data calculated

The risk of portfolio can be seen from coefficient of variation (CV) as shown in table 5. The result of calculation shows that CV of smaller company is higher than larger company; $6.597 > 3.138$. This result shows risk of small company can be generally higher than larger company. Nevertheless, both portfolio of large and small company during research period can generate positive return. As such, big and small company likely generate higher return than risk free rate; the minimum investment return benchmark in Indonesia.

DISCUSSION

Based on research results as shown in Table 2 above, it is found that monthly portfolio return from larger firms could be higher than smaller firms; $0.4489 > 0.2214$. However, higher return from larger firms might come with lower standard deviation compared to smaller firms; $1.40892 < 1.46072$. Hence, this result is in contrary with *portfolio theory* concept; the higher the return, the higher the risk is. But, if it is associated with portfolio's relative risk, then large and small company's stock, it turns out that smaller firm is riskier because of lower coefficient of variation (CV); a measure for relative risk compared to large firms $3.138 < 6.597$. Small firms during the growing phase is truly riskier because they are financially weaker, but more potential in terms of generating higher return (Merkel, 2016). Then, it is said that financial institution (e.g. bank) considers small firms as risky borrower group because of their operational scale, small collateral, and few track-record. This notion is consistent with Beck & Demirguc – Kunt (2006) who asserted that small firm is more prone to default risk because of its lack of capital and liquidity compared to large firm.

Risk in investment is consisted of several types. One of the risk types is important to be considered in the investment in capital market is liquidity risk. Liquidity risk can be seen from stock's transaction activity in capital market. In this research, 33% investment portfolio in large firm is consisted of the most active stock on IDX (Fact book, 2016). Meanwhile, investment portfolio in small firms, the small firm's population is not part of the most active stock transaction during year 2015. Hence, it can be concluded that focus of investor on IDX in reducing risk from shareholder's perspective is to reduce specific risk, considering liquidity factor in stock transaction compared to other risk factors, such as interest rate risk and market risk (Gitman & Zutter, 2018). These facts supported by (Tudor et al, 2014), who says that during high interest rate period investor tends to feel uncertainty in stock market and hence it will make small firm's stock is riskier because stock is more difficult to be traded. This notion is also supported by a research from Yan (2008) who says that investment in stock market, liquidity is an important reason to increase market performance of each stocks.

Portfolio return from both large and small firms during research period was higher than risk free rate. It is consistent with portfolio return, *Share Performance* shows that performance of large firms was better than small firms; $0.2547 > 0.0900$. In general, research result is not in alignment with previous researches which say that small firms can generate higher return than large firms (Merkel, 2016; Banz, 1981).

Observation was conducted in three economic condition; pre-crisis, in-crisis and post-crisis. Portfolio of large and small firms generated positive return higher than risk free rate. This outcome can show that long term investment in stock in Indonesia stock exchange (IDX) remains attractive and profitable, both for large firm and small firm portfolio. Portfolio return from large firm during the pre- and post-crisis period was significantly higher than small firms. Meanwhile, during the in-crisis period, large firms and small firms were equally positive. Hence, during the in-crisis period, investment in Indonesia stock exchange by buying stock of large and small firms is equally attractive as investment instrument.

CONCLUSION

Based on data analysis research results, there are some conclusion can be drawn from this research as follow:

1. *Size* has positive and significant correlation and influence on portfolio *return*
2. Investment portfolio of small firms in IDX from 2001 to 2014 could generally generate lower portfolio return compared to larger firms
3. In the three conditions observed during the pre-crisis, in-crisis and post-crisis period, portfolio return from small firm stocks was lower compared to portfolio return from large firm stocks
4. Relative risk, which is measured from coefficient of variation (CV), was higher for portfolio of small firms compared to the portfolio of large firms
5. Small firms in IDX Indonesia had lower liquidity and higher business risk compared to the large firms

RESEARCH IMPLICATION

For the future research, it needs to further observe why Indonesia Stock Exchange (IDX) generated highest return during in-crisis period compare to other economic cycle (e.g. normal or non-crisis). And, why small firm can merely generate lower return than large firm. Is it an anomaly in the emerging capital market?

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