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## Family Firm Index : An Empirical Study of Family Firms Listed in Indonesia Stock Exchange

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### Abstract

*This study analyses the performance of family firms and evaluates the portfolio of the family firms. If the performance of the family firms indicates good outcome, it is necessary to consider the formation of family firm stock index. The index is commonly used by investment managers to form stock portfolio. To attain the main goal of this research, there are two steps of analysis is needed. The first is to have comparative analysis of two different groups between family and non-family firms. The result indicates that there is a significant difference in the financial performance of the two groups and the performance of the family firms is better than non-family firms. The second is to design some portfolios of the family firms and to measure their performance using Sharpe and Treynor model. The result indicates that there is a consistency between Sharpe and Treynor model. The result explains that the portfolios formed by family firms are well performed.*

Keywords: Portfolio, Family Firm, Sharpe Model, Treynor Model

### 1. Introduction

The value of mutual fund products in Indonesia increases significantly after global crisis. According to Indonesia Capital Market Supervisory Agency, the number of the invested fund was Rp 113 billion in 2005 and it increased to Rp 182 billion in 2012. More than 50% of the fund was invested in the mutual fund product of stocks and the remaining in the fixed income, money market and mixed mutual fund. The portfolio drafting pattern by investment manager in Indonesia, is mostly referencing from LQ-45 index. The LQ-45 index only provide a group of stocks which is based on its market liquidity not its performance. Investment managers need to have new references in drafting a portfolio in order to form a mutual fund that is based on the firm performance. In Indonesia stock exchange (IDX) there are 11 stock indexes where each index have certain drafting criteria. Interestingly, there no family firm index in IDX.

There are numbers of researches on family firm performance that has been done. Such researchers are Anderson and Reeb (2003), Maury (2006), Allouche et. al. (2008), and Sindhuja

(2009) show found that family firms perform better than non-family firms. These results should be able to encourage the investment managers and the investors to consider the inclusion of family firm stocks into their portfolio. The family firms have their own uniqueness in operating their business that they perform better than non-family firms. This study purpose is to form family firm index and to evaluate portfolio performance of family firm stocks. Followings are two questions formulated to meet the objective of the study:

- a) How does the performance of family firms compared to non-family firms?
- b) How does the portfolio performance of family firms measured by Sharpe and Treynor model?

## 2. Literature Review and Hypothesis

### Investment

Reilly and Brown (2004) define investment as a commitment to postpone present consumption and to allocate a number of fund to assets for the hope that the assets would give investors return on investment as they expected at certain risk level they have considered. Real investment is the investment on assets in real sectors such as establishing a firm, buying properties, and so on. Financial investment is the investment on the assets in money market as stocks, obligations, mutual fund, and other financial products.

### Family Firms

According to Donnelley (1964), an organization is called family firm if there are at least (must have) two generations in the family are involved and have decision power in influencing firm's policy. Thus, a firm may be considered as family firm when it has been operated for two generations who involved in decision making and policy making of the firm. Burkart et al. (2003) explain the founder or the family of the founder still has main control in operating the firm, in which the family ownership shares should be larger in percentage compare to other shareholders. Sindhuja (2009) contends that if there is a collective ownership of a firm by groups of families, one of the families must have dominance over others in operating the firm or the family must have more than 50% of the firm ownership. It may be concluded from the theories above that family firm is unique as compared to non-family firm because it has distinct method in managing its business.

### Financial Performance

To identify the firm's financial performance, there should be an analysis tools called financial ratios. Financial ratio analysis is used to interpret a certain number in the firm's financial report and to inform the trend (Sumbramanyan and Wild. 2008). In a broad outline, financial ratio analysis is classified into profitability, liquidity, leverage, and activity. Profitability ratio consists of several following ratios:

- a) Return on assets (ROA) explains how a firm generates profit from the amount of assets they invested.

$$ROA = \frac{\text{Earning After Tax}}{\text{Total Asset}}$$

- b) Net profit margin (NPM) explains the percentage of revenue remaining after all operating expenses, interest, taxes and preferred stock dividends have been deducted from total revenue.

$$NPM = \frac{\text{Earning After Tax}}{\text{Total Sales}}$$

- c) Return on equity (ROE) explains the firm uses liability more than equity to generate profit

$$\text{ROE} = \frac{\text{Earning After Tax}}{\text{Stockholders' Equity}}$$

- d) Basic earning power (BEP) explains the ability of a firm to pay the amount of interest imposed from the number of debt borrowed.

$$\text{BEP} = \frac{\text{Operating Income}}{\text{Total Asset}}$$

### **Portfolio**

Portfolio is a grouping of financial assets such as stocks, bonds, and cash equivalents. Portfolio is held directly by investor and managed by investment manager. In determining the portfolio performance, the risk should also need to be considered not just seeing return only. The model that measures the performance by considering the risk is called risk-adjusted performance measurement model. The risk-adjusted performance measurement model consists of two types of model, Sharpe and Treynor.

### **Sharpe Model**

Sharpe Model in its calculation uses capital market line concept which is why it is also called reward to variability ratio (RVAR). This model is used to describe portfolio return ( $R_p$ ) which is calculated by deducting the portfolio performance with risk free rate ( $R_f$ ) and by considering the total risks ( $\sigma_P$ ) achieved from standard deviation (Sharpe, 1966). In measuring the Sharpe performance, a portfolio is said to be well performed if the value of RVAR is positive. On the other hand, if the value of RVAR is negative then the portfolio performance is not performing well.

$$\text{RVAR} = \frac{R_p - R_f}{\sigma_P}$$

### **Treynor Model**

This model is developed by Treynor (1965) and it is also called as reward to volatility ratio (RVOL). The calculation of Treynor model is based on security market line concept, where the portfolio return is described by calculating the gap between portfolio performances and risk free rate by determining the systemic risks measured by portfolio beta. The assumption used by Treynor is that the portfolio is well diversified so the risk that is considered relevant is beta ( $\beta_p$ ). Based on that, it can be said that the greater the value of RVOL, the better the portfolio performance. On the contrary, as the value of RVOL is getting smaller, the portfolio performance is considered not good. The implementation of beta as the portfolio risk measurement describe that the portfolio is well diversified.

$$\text{RVOL} = \frac{R_p - R_f}{\beta_p}$$

### **Previous Research and Hypotheses Development**

Allouche et al. (2008) describe that family firm performance is better than non-family firm in Japan. Anderson and Reeb (2003) explain that family firm performance is better than non-family firm performance in United States. Maury (2006) explains that family firm performance is better than non-family firm performance in Europe. Sindhuja (2009) describes that family firm performance is better than non-family firm performance in India. Based on those previous researches,, following hypotheses are formulated:

H1: Family firms have better ROA than non-family firms.

H2: Family firms have better NPM than non-family firms.

H3: Family firms have better ROE than non-family firms.

H4: Family firms have better BEP than non-family firms.

Investors and investment managers will continuously try to design portfolios that meet their expectation. The expectation may be fulfilled when the resulting portfolio gives good performance. Various methods to formulate portfolio have been used and one of those who used the methods is Zaima (2008). Zaima (2008) forms a portfolio using economic value added (EVA) as the basis. The research result indicate that the formed portfolio have a good performance based on risk-adjusted performance measurement model. Bal and Leger (1996) described that when Sharpe, Treynor, and Jensen show the same results, then the formed portfolio has perfectly diversified. Bal and Leger (1996) tested its consistency towards the three model with mutual fund in England during 1985-1993. The research result found the correlation between the three model and shows high degree. These indicate that there is a consistency among the three models. According to previous research, following hypothesis is formulated:

H5: Sharpe and Treynor Model show a consistency of portfolio performance

### **3. Research Methodology**

The sample used in this research is the family and non-family firms listed in IDX. The period used in this research is monthly data from 2010-2012 or after the global crisis. The test of the first four hypothesis uses statistical tool called independent sample t-test (if the data is normally distributed) or Mann-Whitney test (if the data is not normally distributed). The last hypothesis testing uses statistical tool called Kendal coefficient of concordance “W”. These statistical tools will test the consistency of the result of stock portfolio from Sharpe and Treynor. The sample selection method of family firms uses purposive sampling method. The criteria are as follow:

1. The family hold the control over the firm or they have the majority of the shares
2. The family leadership in running the business has entered the second generation
3. The family member hold the management position in the firm
4. The family firm is listed in Indonesia Stock Exchange (BEI) in 2010-2012

### **4. The Results of Hypotheses Test**

Based on the criterion of the family firm, this research has selected 50 family firms and 50 non-family firms (state owned and private firm) from different industries. Normality test is conducted using one-sample Kolmogorov-Smirnov test and it compares the probability value of each data group at 5%. The results of data normality test shown in table 1 indicate that the value of each

probability is over 0.05, which means that the data is normally distributed. Therefore, the first four hypotheses testing will use independent sample t-test.

Table 1. Normality test of ROA, NPM, ROE, BEP

	ROA FAMILY	ROA NONFAMILY	NPM FAMILY	NPM NONFAMILY	ROE FAMILY	ROE NONFAMILY	BEP FAMILY	BEP NONFAMILY
N	50	50	50	50	50	50	50	50
Kolmogorov-Smirnov Z	.491	.478	.523	.489	.704	.459	.591	.670
Asymp. Sig. (2-tailed)	.970	.976	.947	.971	.705	.984	.876	.761

**Hypotheses 1**

Table 2 shows that the hypotheses is accepted. It means that there is a significant difference in ROA between family firms and non-family firms. Its probability value is below 0.05, which is 0.00. The mean of the family firms is 55.75 and higher than non-family firms, which is 27.28. It indicates that the ROA of the family firms is better than non-family firms.

Table 2. Independent sample t-test of ROA

Group Statistics					
Family_NonFamily		N	Mean	Std. Deviation	Std. Error Mean
ROA	Family	50	55.7500	14.58831	2.06309
	Non Family	50	27.2760	18.15969	2.56816

  

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
ROA	Equal variances assumed	2.996	.087	8.644	98	.000	28.474	3.29422
	Equal variances not assumed			8.644	93.649	.000	28.474	3.29422

**Hypotheses 2**

Table 3 indicates that the hypotheses is accepted. It means that there is a significant difference between family firms and non-family firms. Its probability value is below 0.05, which is 0.00. The mean of the family firms is 51.05 and higher than non-family firms, which is 24.91. It indicates that the NPM of the family firms is better than non-family firms.

Table 3. Independent sample t-test of NPM

**Group Statistics**

Family_NonFamily		N	Mean	Std. Deviation	Std. Error Mean
NPM	Family	50	51.048	14.57208	2.06080
	Non Family	50	24.914	9.36749	1.32476

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
NPM	Equal variances assumed	14.114	.000	10.667	98	.000	26.13400	2.44988
	Equal variances not assumed			10.667	83.591	.000	26.13400	2.44988

**Hypotheses 3**

Table 4 shows that the hypotheses is accepted. It means that there is a significant difference between family firms and non-family firms. Its probability value is below 0.05, which is 0.00. The mean of the family firms is 53.12 and higher than non-family firms, which is 25.58. It describes that the ROE of the family firms is better than non-family firms.

Table 4. Independent sample t-test of ROE

**Group Statistics**

Family_NonFamily		N	Mean	Std. Deviation	Std. Error Mean
ROE	Family	50	53.1200	26.67464	3.77236
	Non Family	50	25.5800	14.60540	2.06552

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
ROE	Equal variances assumed	23.675	.000	1.753	98	.023	27.54000	4.30082
	Equal variances not assumed			1.753	75.957	.023	27.54000	4.30082

**Hypotheses 4**

Table 5 shows that the hypotheses is accepted. It means that there is a significant difference in the BEP between family firms and non-family firms. Its probability is below 0.05, which is 0.00. The mean of the family firms is 46.18 and higher than non-family firms, which is 21.94. It shows that the BEP of the family firms is better than non-family firms.

Table 5. Independent sample t-test of BEP

Group Statistics					
Family_NonFamily		N	Mean	Std. Deviation	Std. Error Mean
BEP	Family	50	46.18	15.07219	2.13153
	Non Family	50	21.94	12.00750	1.69812

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
BEP	Equal variances assumed	3.505	.064	1.556	98	.012	24.24000	2.72526
	Equal variances not assumed			1.556	93.338	.012	24.24000	2.72526

### Hypotheses 5

There are 5 portfolios of 50 family firms. Each of the portfolios consists of 10 stocks. Table 6 summarizes the random formulation of the portfolio of the family firms. The selection of the 10 stocks in a single portfolio aims at making the calculation of the return portfolio easier.

Table 6. The portfolio of the family firms

Portfolio	Stock Composition (Code)
A	AKRA, BRPT, BLTA, CTRA, CTRS, GGRM, KLBF, MRAT, PWON, INDF
B	SMDR, SMMA, SMRA, TIRA, TGKA, BYAN, TSPC, MYOR, DUTI, BUKK
C	CTRP, BSDE, AALI, ASII, SULI, AUTO, UNTR, ASGR, MBAI, JPFA
D	SGRO, SMAR, INKP, TKIM, PLIN, APEX, MEDC, SDRA, IMAS, SMSM
E	BHIT, BCAP, GJTL, MPPA, INDY, HERO, ADMF, MAPI, FREN, RMBA

It may be clearly observed in table 7 that the RVAR and the RVOL of all of the portfolios of the family firms are positive. Based on the results, all of the portfolios of the family firms are randomly arranged and indicative of good performance. There is a consistency in the rankings of Sharpe and Treynor model in table 8. Whether the hypothesis 5 is accepted may be observed in Sharpe and Treynor model in table 8. It may also be observed in the value of Kendall's "W" as summarized in table 9, which is 1. It indicates that there is a consistency and the hypothesis is accepted.

Table 7. The performance of the portfolio in Sharpe and Treynor model

Portfolio	$\overline{R_p}$	$\overline{E(R_p)}$	$\beta_p$	$\sigma_p$	RVAR	RVOL
A	0.00109	0.00055	1.114	0.01871250	0.03576	0.00065
B	0.00065	0.00055	1.113	0.02150228	0.01066	0.00021
C	0.00086	0.00054	1.048	0.02103182	0.02085	0.00042
D	0.00119	0.00056	1.235	0.02249203	0.03430	0.00060
E	0.00117	0.00055	1.142	0.02096661	0.03565	0.00062

Table 8. The rankings of the portfolio performance

Portfolio	RVAR	Rank	RVOL	Rank
A	0.03576	1	0.00065	1
B	0.01066	5	0.00021	5
C	0.02085	4	0.00042	4
D	0.03430	3	0.00060	3
E	0.03565	2	0.00062	2

Table 9. The test of Kendall's coefficient of concordance "W"

**Test Statistics**

N	2
Kendall's W <sup>a</sup>	1.000
Chi-Square	8.000
df	4
Asymp. Sig.	.092

a. Kendall's Coefficient of Concordance

**5. Conclusion**

Family firms have better financial performance than non-family firms and the stock portfolios of the family firms indicate well performing portfolio. The family firms have their own uniqueness in operating their business. The results of the study corroborate the prior studies comparing the performance between family firms and non-family firms. Therefore, the family firms index should be formed that the investment managers and the investors have new reference in formulating the stock portfolio of family firms.

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