# ANALYSIS OF PORTFOLIO PERFORMANCE EVALUATION IN 2008 AND 2013 CRISIS YEAR, INCLUDED PERFORMANCE SIMULATION IN RECENT 2018 YEAR (THE CASE OF JAKARTA ISLAMIC INDEX-JII STOCK ON INDONESIAN STOCK EXCHANGE)

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## Abstract

*This research intended to find best of JII portfolio performance from in 2008 and 2013 crisis, to perform of 4 optimal portfolios difference test and to find best of portfolio performance simulation in 2018. The portfolio was formed by Single Index Model and evaluated by Treynor Index. The research result show that best portfolio performance is bullish 2008 and the worst one is bearish 2008. There are no significant performance difference between portfolios in the market: bearish 2008 vs bearish 2013 and bullish 2008 vs bearish 2013. There are any significant performance difference between portfolios in the market: bullish 2008 vs bearish 2008, bullish 2013 vs bearish 2013, bullish 2008 vs bullish 2013 and bearish 2008 vs bullish 2013. Portfolio simulation result with 4 duration in 2018 year show that portfolio in bearish 2008 with 1 month simulation is better than 3 others portfolio with 3 others duration simulation and also compared with JII market best performance. When investor will invest in the unknown market condition, it is suggested to select a portfolio which is formed in the bearish market condition. If investor will invest on non portfolio, so it is recommended to invest on stock from consumer goods sector.*

*Keywords: Bullish-bearish market, optimal portfolio, portfolio performance, difference test, portfolio simulation*

## INTRODUCTION

USA crisis in 2008 influenced to Asia Pacific economy through: banking sector, flight to quality, and stock market (Zhang et al., 2010). Global economy crisis 2008 was started in Q1-2007 as financial crisis in USA, then few months later spreadwide in the whole world, included in Indonesia (Tambunan, 2010). Crisis in 2008 was caused by *instrument subprime mortgage* in the USA and Indonesia economic also was affected the impact (Sinabutar and Nugroho, 2015). Financial crisis 2013 in Indonesia was detected in January 2012-December 2014 period based on World Bank Standard Threshold (Armansyah, 2018). Trend of Jakarta Composite Index in the Indonesian Stock Exchange (BEI) in 1992-2017 period (BEI, 2017), indicated that economy crisis in Indonesia has 5 years cycle that is year of: 1998, 2003, 2008 and 2013. Crisis indication in 2008 and 2013 year also was strengthened with existence similarity of market or index stocks performance in ASEAN emerging market countries (BEI, 2006-2014). Stock price in BEI timely show that there is fluctuation/volatile in the bullish and bearish market condition. Phenomenon of bullish-bearish market in the Indonesian Stock Exchange in 1997-2013 period has been examined by Usman (2013) with Candlestick Analysis, then in 1996-2013 period by Defrizal et al. (2015) with Markov Switching Model. Related with investment in common stock, investor will be faced to wide options from industrial sectors, so sector investment analysis is important to determine easier of investment selection (Jones, 2013).
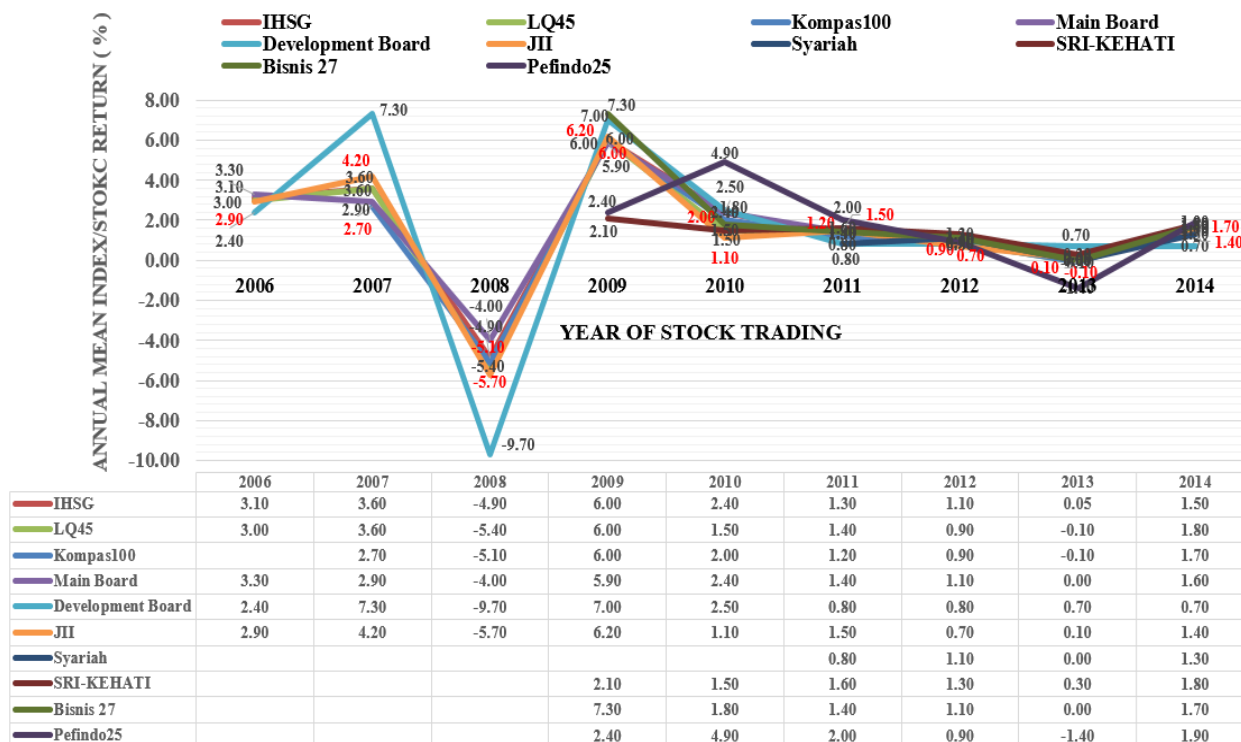


| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|
| IHSG | 3.10 | 3.60 | -4.90 | 6.00 | 2.40 | 1.30 | 1.10 | 0.05 | 1.50 |
| LQ45 | 3.00 | 3.60 | -5.40 | 6.00 | 1.50 | 1.40 | 0.90 | -0.10 | 1.80 |
| Kompas100 | | 2.70 | -5.10 | 6.00 | 2.00 | 1.20 | 0.90 | -0.10 | 1.70 |
| Main Board | 3.30 | 2.90 | -4.00 | 5.90 | 2.40 | 1.40 | 1.10 | 0.00 | 1.60 |
| Development Board | 2.40 | 7.30 | -9.70 | 7.00 | 2.50 | 0.80 | 0.80 | 0.70 | 0.70 |
| JII | 2.90 | 4.20 | -5.70 | 6.20 | 1.10 | 1.50 | 0.70 | 0.10 | 1.40 |
| Syariah | | | | | | 0.80 | 1.10 | 0.00 | 1.30 |
| SRI-KEHATI | | | | 2.10 | 1.50 | 1.60 | 1.30 | 0.30 | 1.80 |
| Bisnis 27 | | | | 7.30 | 1.80 | 1.40 | 1.10 | 0.00 | 1.70 |
| Pefindo25 | | | | 2.40 | 4.90 | 2.00 | 0.90 | -1.40 | 1.90 |

Figure 1. Mean Return/Index of 9 Stock on Indonesian Stock Exchange in 2006-2014 Period

Source: BEI 2014 (Processsed Data)

Figure 1 shows mean return/index and volatile trend from 9 stock groups in the Indonesian Stock Exchange (BEI) in 2009-2014 period. Reason of determination JII stock as the research object is JII have phenomenon of average and annual stock return volatile aspect if compared with others stocks, JII is big capital stock category (Adjusted Standard & Poor, 2017), JII also is as representative of sharia stock. According to Harahap (2017) that portfolio performance of big cap stock on the Indonesian Stock Exchange is better than small cap stock in the bearish market (crisis) condition in 2010-2015 period. Other side, sharia stock portfolio on the Malaysian Stock Exchange relative less is affected by bearish market condition and can decrease more significantly volatile of stock return than non sharia portfolio (Chen and Lim, 2015)

Background of the research is: existence stable volatility phenomenon of JII stock return/index in the bullish and bearish market of 2008 and 2013 crisis year as seen on the Figure 1. According with investment theory, investor will be interesting to invest on the stocks which has characteristic "high risk-high return" (Yaacob et al., 2003), with still refer to the portfolio theory. Other background, Harmono (1999) stated that portfolio performance evaluation must be performed continuously by investor to change strategy of investment diversification in optimal portfolio forming because portfolio performance analysis has short term characteristic. The opinion is in line with Campbell and Viciera (1999) that the faced problem by investor is time-varying from expected return, so need investment diversification strategy. Portfolio performance evaluation must be performed continuously by investor to change strategy of investment diversification in optimal portfolio formation, that is portfolio with best performance to face bullish-bearish market condition in the future. The best performance of portfolio formation in 2008 and 2013 crisis year need to be simulated 4 durations in 2018 year from return portfolio and Index Treynor aspects to determine one of the best, then will be compared with simulated market performance result as reference. As Cogneau and Hubner (2009) statement that investment performance evaluation need to consider some aspects such as: economic condition (volatile or stable, bullish or bearish), investment type (stock, portfolio, bond) also investment duration (short, medium and long term).

The research is conducted with 3 main purposes: to determine of forming stock number and 1 best performance of 4 JII portfolios in the 4 different markets in 2008 and 2013 year, also to conduct independence different to examine 6 research hypothesis to above formed 4 portfolios performance. Finally 4 formed portfolios in 2008 and 2013 year are simulated in 4 durations: 1 month, 2 months, 3 months and 6 months in 2018 year to determine 1 best performance portfolio if is compared with others 3 portfolio with others 3 simulation duration and also with 1 best performance simulation of JII market.

## LITERATURE REVIEW

According to Jones (2016), return is profit level which will be taken by investor as capital gain/loss and/or yield, while risk is possibility deviation between realized return and expected return. Risk consist of firm/non systematic risk which can't be diversified and market/systematic risk which can be diversified. More risky investment decision will be expected giving away more return, as investment theory with term of "high risk high return". Investor will form of portfolio investment in order to get more expected return portfolio and reduce risk level. Investor rationality can be measured from stock/investment selection method which will give maximum return in the certain risk level or which has minimum risk in the certain return level (Jogiyanto, 2013).

Bullish or bearish is stock price trend condition to move up or down continuously in certain period, which caused by fundamental factors or market euphoria only and occurred when stock price always make higher high or lower low and can be consistently above or below of Moving Average 20 (MA20) for quite a long time. According to Brown et al. (1998:1314), there are 3 steps of bullish market formation based on characteristic of economy fundamental activities and market price changing, that is: Step 1: Rise up of trustworthy to business in the future, Step 2: Stock price response to profit improvement, Step 3: Rampant speculation is rampant and appeared inflation. While 3 steps of bearish market formation that is: Step 1: Appeared of expectation decreasing by stock selling when price increasing, Step 2: Reflection of stock selling is caused by decreasing of business and profit, Step 3: Caused by stock selling pressure due to stock price/value.

Portfolio opinion and concept from some experts and researchers as follows: According to Brigham et al. (2019), diversification can decrease investment risk, therefore most stock will be saved in portfolio formation, according to Elton et al. (2014), key problem which is faced by an individual is how to distribute or allocate the wealth to the different assets, according to Lubatkin et.al (1994:144), investment diversification for hedging from firm gambling in order to avoid the losses, according to Yaacob et al. (2003:66), diversification is the main basis for portfolio optimalization by combining stocks from some different sectors, inter stock price movement will tend as mutual complement. Portfolio is more risky, so return will be higher in long term, according to Campbell and Viciera (1999:475), The investor problem is existence time-varying from expected return, so need for diversification strategy, according to Tandelilin (2010:2), investment is a commitment for present fund to get profit in the future as dividend or capital gain. While optimal portfolio is selected by investor from some efficient portfolios.

Determination of optimal portfolio can use some following models: Markowitz Model (MM): Markowitz (1952) published a journal "*portfolio selection*", where portfolio expected return is

linier function from assets formation expected return. Markowitz Modern Portfolio Theory is "don't put all your eggs in one basket", as known with term of investment diversification on more than one sector/asset and not inline direction. Portfolio risk is calculated through standard deviation of return portfolio (Vasilelis and Meade, 1996:125). Single Index Model (SIM): Elton et al. (2009) stated optimal portfolio can be formed by making unique stock rank with evaluation of desired stock to be included on portfolio, which known as Single Index Method. Stock movement isn't caused by external market effect (effect of industrial or firm), but caused by common relation to the market index (Jogiyanto, 2013:374). Constant Correlation Model (CCM): According to Elton et al. (2009:195), the model has assumption that correlation coefficient interstock couple is constant, so correlation coefficient value is average of stocks correlation coefficient value which included on portfolio.

Purpose of portfolio performance evaluation is to analyze achievement of investment objective, whether portfolio formation return, is able to compensate risk level which faced by investor (Tandelilin, 2010). Jensen in Achsien (2003:100) identified 2 aspects of portfolio performance evaluation as capability of portfolio manager to increase portfolio return through good prediction from stock price in the future and also to minimize impact of portfolio risk. There are 3 portfolio performance evaluation methods that measure return and risk-adjusted: Sharpe Index (Reward to Variability Ratio) was developed by William Sharpe (1963) based on Capital Market Line Concept (CML) as reference that is comparison between portfolio premium risk (that is difference between portfolio return rate/average and risk free interest rate/average) with portfolio risk (standard deviation). According to Bednarek et al. (2016) and Low et al. (2013), Sharpe Index is popular instrument with most simple to measure portfolio performance for academics and practitioners. L. Ferruz et al. (2010) stated Sharpe Index measure return as calculation unit deducted with risk-free return and divided by total risk. Treynor Index (Reward to Volatily Ratio) was developed by Jack Treynor (1965) based on Security Market Line concept (SML) as reference for comparison between portfolio premium risk with portfolio risk which stated as beta (market or systematic risk). Motivation of Treynor Index development is from equilibrium between *non-diversifiable risk* with *expected return* which refer to CAPM concept (Morey and Morey, 2000:127). Two theories of Treynor are related with 2 risks: risk by market fluctuation generally and risk by stock fluctuation individually. Higher of portfolio Treynor Index indicate higher of portfolio performance. Sharpe Index and Treynor Index become standard in industrial in risk-adjusted measurement (Deborah Kidd, 2011; Scholz& Wilkens, 2005) and most widely was cited as measurement instrument/tool by researchers in portfolio management. Jensen Index was developed by M. C. Jensen (1968) to evaluate portfolio performance based

on CAPM concept that measure premium risk difference of portfolio from market in the certain portfolio beta level. In equilibrium condition, all of portfolios are expected on the SML.

**RESEARCH METHOD**

The research is comparative type which described and compared of research result: difference of formation stock name-number and performance from 4 optimal portfolios JII, comparison and selection 1 best of 4 best portfolios performance for 4 markets, comparison and selection 1 best of 4 portfolios performance and 4 market performance for 4 durations simulation in 2018, also differentiation and signification level of independent difference testing result. Research framework or flowchart is served on Figure 2.
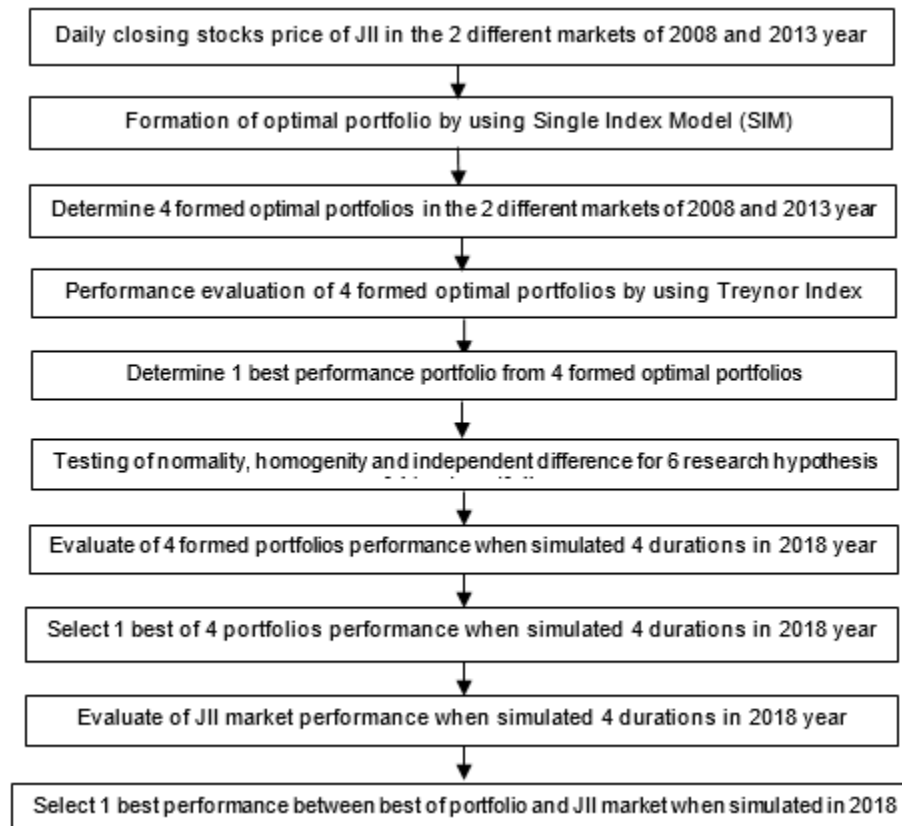


Figure 2. Research Flowchart or Framework

Detail of research flowchart or framework on Figure 2 can be explained as follows:
 1.   Forming of optimal portfolio with data processing from following data resources:
Compile/define stock number and name of JII based on purposive sampling criterias.
Collect daily closing price of stock and JII index in research 2013 period.
Calculate total of realized return and expected return for each stock and market JII.

Return is return level from the investment (Zubir, 2011).

$R_i = (P_i - P_{i-1}) / P_{i-1}$  or $R_m$ = SBI or SBIS ................................................................. (1)

Calculate variance and standard deviation from stock and JII market

Standard deviation is addition market risk and firm unique risk (Jogiyanto. 2015)

$\sigma_i^2 = \sum [R_i - E(R_i)]^2 / (n-1)$ and $\sigma_m^2 = \sum [R_m - E(R_m)]^2 / (n-1)$ ....................................... (2)

$\sigma_i = \sqrt{\sigma_i^2}$ and $\sigma_m = \sqrt{\sigma_m^2}$ ......................................................................... (3)

 2.  Determination and selection of optimal portfolio by using SIM (Single Index Model)

Calculate covariance correlation between stock return and market return.

$\sigma_{im} = [R_i - E(R_i)] [R_m - E(R_m)]$ ........................................................................ (4)

Calculate beta that is dividing covariance by market variance and calculate alpha that is expected stock return value to the market return by calculation risk of unique and total.

$\beta_i = (\sigma_{im} / \sigma_m^2)$ and $\alpha_i = E(R_i) - [\beta_i * E(R_m)]$ ................................................ (5)

Calculate variance error residual by measurement return excess relative to the risk unit which can't be diversified. Variance error residual is variance from stock residual error that is unique risk. (Jogiyanto, 2015) …..................................................................... (6)

$\sigma_{ei}^2 = \sum [ei - E(ei)]^2 / (n-1) = [R_i - (\alpha_i + \beta_i.R_m)]^2 / (n-1)$ ............................................... (7)

Calculate and arrange of stock rank based on highest ERB to lowest ERB. ERB is measured of stock premium return relatively to the 1 market risk unit which is can't be diversified ($\beta$). (Jogiyanto, 2015)

$ERB_i = [E(R_i) - R_f] / \beta_i$ ................................................................................... (8)

Calculate of $A_i$ and $B_i$ to get $A_j$ and $B_j$, then determine cut-off rate ($C_i$)

$A_i = [E(R_i) - R_f]\beta_i / (\sigma_{ei}^2)$ and $B_i = \beta_i^2 / \sigma_{ei}^2$ ................................................ (9)

$C_i = [\sigma_m^2 (\sum A_i)] / [1 + \sigma_m^2 (\sum B_i)]$ .................................................................... (10)

Determine of unique cut-off point (C*) that is highest $C_i$ value from some stocks $C_i$.

$C_i$ is dividing result of market variance and premium return to the variance error with market variance that is stock sensitivity to the variance error. (Jogiyanto, 2015)

If ERB of stock ≥ ERB in C* limit value, so stock will be as optimal portfolio forming.

Determine of stock number and name as 4 optimal portfolios forming.

Determine of weight proportion value for each stock as 4 optimal portfolios forming.

Weight proportion is fund level which invested for each stock. (Jogiyanto, 2015)

$Z_i = (\beta_i / \sigma_{ei}^2) (ERB_i - C*)$ ................................................................................ (11)

$W_i = Z_i / \Sigma Z_i$ ................................................................................................... (12)

Determine of beta, alpha, return, variance and standard deviation/risk of formed 4 portfolios.

Portfolio return is return level from formed portfolio by calculation of weighted average expected return for each stock in the portfolio. (Jogiyanto, 2015) and portfolio risk is investment risk of a stocks group in the portfolio. (Hadi, 2011).

$\beta_p = \Sigma\, W_i\, \beta_i$ and $\alpha_p = \Sigma\, W_i\, \alpha_i$ ............................................................................... (13)

$E(R_p) = \alpha_p + \beta_p\, E(R_m) = \Sigma\, W_i\, E\,(R_i)$

$\sigma_p{}^2 = \beta_p{}^2\sigma_m{}^2 + \Sigma W_i{}^2\, \sigma_{ei}{}^2$ and $\sigma_p = \beta_p.\sigma_m$................................................................. (14)

3. Calculate of portfolio performance (Treynor Index = TI)

Portfolio performance evaluation by Treynor Index is comparison of portfolio premium risk with portfolio risk $\beta$ (market risk), in order to measure ERB that is trade off return excess to the systematic/market risk. (Jogiyanto, 2013).

Calculate of Treynor Index (TI) for each portfolio and JII market

$IT_p = [E(R_p) - R_f]\, /\, \beta_p$ and $IT_m = [E(R_m) - R_m]\, /\, \beta_m$, di mana $\beta_m = 1$ ......................... (15)

Determine 2 best performance portfolios in the each markets of bullish 2013 and bearish 2013.

4. Examine 6 hypothesis with Independent Difference Test to the 2 best performance portfolios.

The research use Independent difference-two ways/tails test to examine difference existence and signification level between 2 portfolios performance data. The data is performed normality and homogenity test to check normality distribution and nature homogenity of the sample data.

5. Conduct performance simulation to the 2 best formed and market by using Treynor Index approach and calculation formula as equation (15).
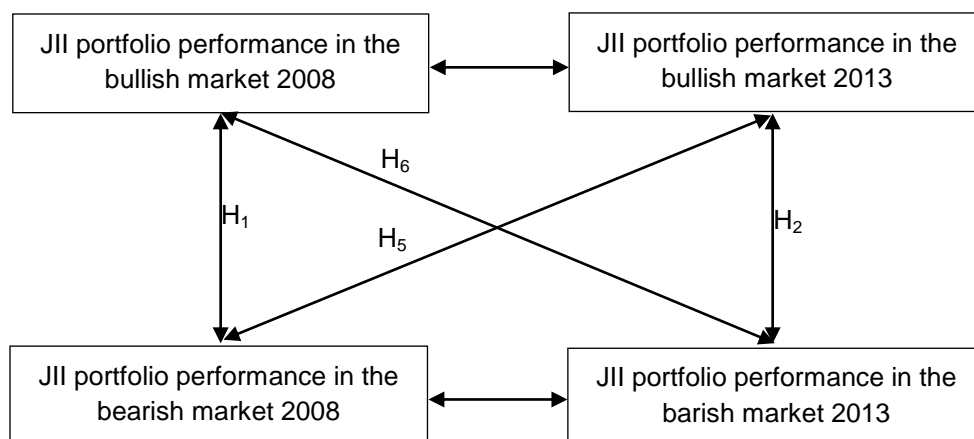


Figure 3. Research 6 Hypothesis for 4 Formed Portfolios Performance

Independent difference two ways/tails test is performed to check existence of differentiation and signification level from 2 portfolios performance data. The data is performed normality and homogenity test to check normality distribution and nature homogenity of the sample data.

6 hypothesis testing on Figure 3 which was performed and assumed that there are any performance difference between portfolios in the market of bullish 2008 and bearish 2008 (H1), bullish 2013 and bearish 2013 (H2), bearish 2008 and bearish 2013 (H3), bullish 2008 and bullish 2013 (H4), bearish 2008 and bullish 2013 (H5), also bullish 2008 and bearish 2013 (H6).

Research population is all firm stocks which listed in JII stock  group in 3 research and simulation periods: 2008, 2013 and 2018 year, where JII population is total 68 stocks. Determination criteria for purposive sampling as follows: listed in the JII stock in 3 research and simulation periods: 2008, 2013 and 2018 year and there are no stock split/reverse and merger/acquisition in 2008, 2013 and 2018 year. Based on purposive sampling criteria, so research sample number for JII is 14 stocks (viz. INTP, KLBF, PTBA, UNTR, UNVR, ASII, INDF, AALI, ITMG, CTRA, AKRA, ASRI and WIKA). The research data used is secondary data and time-series type. Research data, sources data and data period are served on the Table 1.

Table 1. Type, Sources and Period of Research Data from Secondary Data

| - | Data Type | Data Source | Data Period |
|---|---|---|---|
| 1 | Daily closing stock price | www.idx.co.id<br>www.finance.yahoo.com | a. Crisis period year 2008:<br>12 January 2007-28 October 2008 |
| 2 | Daily closing index price | www.idx.co.id<br>www.finance.yahoo.com | b. Crisis period year 2013:<br>11 January 27 August 2013 |
| 3 | Sharia interest rate SBIS | www.bi.go.id | c. Simulation year period 2018:<br>01 June-30  November 2018 |

Other supporting data are came from IDX Annual Statistics and Index Guidance Book from PT. Bursa Efek Indonesia (Indonesian Stock Exchange), Stock Market Statistic from OJK (PT OtoritasJasaKeuangan / Finance Service Authority) and others literature related with the research data.

## RESULTS AND DISCUSSION

Table 2. Summary of Forming and JII Portfolio and JII Market Performance

| No. | Data | Performance of Portfolio and JII Market in the 4 Markets Condition | | | |
|-----|------|------------|-------------|-------------|--------------|
| | | Bullish 2008 | Bearish 2008 | Bullish 2013 | Bearish 2013 |
| 1 | Stock no. of portfolio formation | 6 | 2 | **7** | 2 |
| 2 | Stock name and proportion weight of formed portfolio | 1. ASRI  = 72,58%<br>2. AKRA = 10,19%<br>3. ITMG  = 8,81%<br>4. LSIP   = 3,82%<br>5. PTBA  = 3,57%<br>6. AALI  = 1,04% | 1**. UNVR = 95,5%**<br>2. PTBA = 0,5% | 1. KLBF   = 19,65%<br>2. ASRI    = 15,90%<br>3. AKRA  = 15,75%<br>4. **UNVR  = 14,83%**<br>5. INDF    = 13,10%<br>6. WIKA  = 12,61%<br>7. INTP    =  8,15% | 1. **UNVR = 66,97%**<br>2. AALI  = 33,93% |
| 3 | Portfolio return E ($R_p$) (%) | **2.4677** | 0.0926 | 0.4438 | 0.1229 |
| 4 | Portfolio risk ($\sigma_p$) (%) | 2.4775 | 1.6671 | **0.8560** | 1.8551 |
| 5 | Treynor Index/TI | **7.4310** | 0.0271 | 2.1254 | 0.0730 |
| 6 | Market Return $R_m$ (%) | 0.248 | -0.538 | **0.264** | -0.389 |
| 7 | $R_f$= SBIS Market | 0.086 | 0.087 | 0.049 | 0.055 |
| 8 | Market IndeksTreynor ($IT_m$) | 0.162 | -0.625 | **0.214** | -0.444 |

*Source: www.finance.yahoo.com (Processed data)*

Table 2 described following information: Stock number to form JII portfolio sequently in the 4 markets condition: bullish 2013 (7 stocks), bullish 2008 (6 stocks), bearish 2013 (2 stocks) and bearish 2008 (2 stocks). Previous research showed that stock number to form JII portfolio in 2007-2008 and 2012-2013 period tend to approach above stock number (Aryani, 2012; Yuliati, 2011; Hidayat, 2016 and Adin, 2015). UNVR (as stock was listed before 2000 in the Indonesia Stock Exchange and in big capital stock category) relative better than others stock because UNVR become portfolio formation in the 3 different markets, except in bullish 2008. According to Armansyah (2018), profit, size and old of firm affected significantly in the Indonesia stock market in 2012-2017 period. Previous research which support UNVR as JII portfolio formation with highest weight proportion in 2007-2015 period (Turyono, 2012; Aryani, 2012; Yuliani et al., 2017 and Yuhasril et.al, 2017). Sector of consumer goods relatively better than others sector if reviewed from side of most represented by 3 stocks portfolio formation (UNVR, KLBF and INDF) in the 3 markets condition with quite high weight proportion. According to Robiyanto (2017),

sector of consumer goods has second best performance (by Sharpe Index, Treynor Index and Jensen Index) in January 2011-July 2017 period. Rudangga and Sudiarta (2016) in Armansyah (2018) stated that firm size affected positively to the value and increasing of stock price for consumer goods sector (F&B sub sector) in the Indonesia Stock Exchange in 2011-2014 year. According to Martin et al. (2017), average annual stock return of consumer goods sector in 2008-2015 period was highest because began to develop retail outlet in Indonesia, also wholesaler or franchise and small retail which located around settlement community which will support product distribution. Global Business Guide Indonesia (2013) stated when Indonesia growth in between 6.2%-6.5% per year since 2010 year, spend of consumer goods increased 2 digit in the same period, where one of reason is caused by impact of urbanisation and middle class growing. It tends to promote new lifestyle to create demand to consumer goods product, previously it is assumed as not important goods (secondary needs). There is any shifting primary needs to secondary/tertiary needs which will increase consumption level and buying power public, also consumer goods demand. E ($R_p$) on the bullish 2008 market (2.468%) is highest and on bearish 2008 market (0.0926%) is lowest, while portfolio performance (IT) sequently is bullish 2008 (7.431), bullish 2013 (2.125), bearish 2013 (0.073) and bearish 2008 (0.0271).

When 2008 crisis year, it is applied principal of *high risk high return* because in the bullish market, very high return portfolio is resulted when risk portfolio is also very high. It is in line with return and risk concept from Capital Asset Pricing Model (CAPM) that stated higher risk of investment, so higher too required return by investor, also supported by correlation between risk and required return by investor is positive and linier (Turnbull, 1977). Refer to investment principal, *risk seeker* investor tend to invest in the bullish market 2008, while risk adverse investor will invest in the bullish market 2013. Investor tends careful, also wait and see when invest in the market condition of bearish 2008 and bearish 2013. Research of Indrayono (2011) stated that Indonesian Stock Exchange price in 2008 crisis year isn't only affected by fundamental factor, also by behaviour factor of disposition effect from investor. Otherwise previous research result Armansyah (2018)[2] stated LQ 45 stock/index price in the 2013 crisis year isn't affected by behaviour factor of disposition effect from investor, also 2013 crisis impact to the economic isn't so big. The finding contrary with previous research results about disposition effect in the crisis of 1998 and 2008 year by Grinblatt and Han (2005), Dhar and Zhu (2006), also Indrayono (2011). It is caused any difference from stock market location, crisis period and investor have learn based on experience in the previous crisis in 1998 and 2008 year. Investor in the 2013 crisis isn't panic withhold stock longer when in bullish market and selling stock quickly when in the bearish market, so stock price volatile isn't so high due to there

is no disposition effect. Other side research duration in 2008 crisis (12 January 2007-28 October 2008) is longer than in 2013 crisis (11 January 2013-27 August 2013), so it is suitable with investment principal that investor tends to invest in 2008 year due to long term investment type and apply principal of high risk high return, that short term investment in 2013 year due to apply principal of risk low return. Research result Wardjianto (2005) stated that to face crisis or bearish market, investor is better to wait and see because in the bearish market can't be formed an optimal portfolio with based on *Single Index Model*. It means that when optimal portfolio is formed with SIM then invested in the bearish market, so purpose of portfolio forming, to achieve high return in the accepted risk level by investor also investment principal of *high risk high return,* can't be taken byinvestor.

Table 3. Normality Test Result to JII Portfolio Performance $IT_p$

| No | Market Condition | Shapiro-Wilk Test | |
|----|------------------|-------------------|------|
|    |                  | DF | Sig. |
| 1 | Bullish Market in 2008 | 10 | 0,611 |
| 2 | Bearish Market in 2008 | 9 | 0,197 |
| 3 | Bullish Market in 2013 | 8 | 0,105 |
| 4 | Bearish Market in 2013 | 8 | 0,302 |

Table 3 described that data sample for hypothesis testing, in the bullish 2008 market (10 samples), bearish 2008 (9 samples), bullish 2013 (8 samples) and bearish 2013 (8 samples) are distributed normally because signification level is more than 5%.

Table 4. Test Result of Levene Homogenity and 6 Hypothesis Independent Difference

| No | Item | Sig. Levene Test | Sig-2 tailed (equal variance) | Sig-2 tailed (not equal variance) | Mean difference |
|----|------|------------------|-------------------------------|-----------------------------------|-----------------|
| 1 | Hypothesis-1(Bullish 2008 vs Bearish 2008) | 0,744 | 0,005 | | 0,729 |
| 2 | Hypothesis-2 (Bullish 2013 vs Bearish 2013) | 0,771 | 0,013 | | 1,647 |
| 3 | Hypothesis-3 (Bearish 2008 vs Bearish 2013) | 0,984 | 0.515 | | -0,462 |
| 4 | Hypothesis-4 (Bullish 2008 vs Bullish 2013) | 0,008 | | 0,008 | -1,328 |
| 5 | Hypothesis-5 (Bearish 2008 vs Bullish 2013) | 0,002 | | 0,000 | -2,049 |
| 6 | Hypothesis-6 (Bullish 2008 vs Bearish 2013) | 0,026 | | 0,069 | 2,988 |

Table 5 described that hypothesis of 1, 2, 4 and 5 are accepted due to signification level are less than 5%, so finally there are any performance significantly difference between portfolio in the markets of bullish 2008 and bearish 2008, bullish 2013 and bearish 2013, bullish 2008 and bullish 2013, also bearish 2008 and bullish 2013. Hypothesis of 3 and 6 are rejected due to signification level are more than 5%, so finally there are no performance significantly difference between portfolio in the markets of bearish 2008 and bearish 2013, also bullish 2008 and bearish 2013.

There is no performance significantly difference between portfolio in the market of bullish 2008 and bearish 2013 is supported by previous research results (Wardjianto, 2005:58). There is any performance significantly difference between portfolio in the market of bullish 2008 and bearish 2008, also bullish 2013 and bearish 2013 are supported by previous researches results (Hadita, 2010:61).

Table 5. Result of 4 Durations Simulation in 2018 to 4 Portfolios Performance and JII Market

| No | Data | 1 Month Simulation in 2018 | | | | 2 Months Simulation in 2018 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2008 | | 2013 | | 2008 | | 2013 | |
| | | Bullish | Bearish | Bullish | Bearish | Bullish | Bearish | Bullish | Bearish |
| 1 | Return portfolio $R_p$ (%) | -0.696 | **0.108** | -0.889 | 0.038 | -0.210 | -0.140 | -0.265 | -0.184 |
| 2 | Risk portfolio ($\sigma_p$) (%) | 1.681 | 1.751 | 2.453 | 1.714 | 1.842 | 1.582 | 1.679 | 1.395 |
| 3 | Treynor Index ($IT_p$) | -1.670 | **0.065** | -0.896 | -0.029 | -0.351 | -0.239 | -0.325 | -0.330 |
| 4 | Market Return $R_m$ (%) | -0.243 | | | | -0.079 | | | |
| 5 | Market Risiko ($\sigma_m$) (%) | 1.819 | | | | 1.475 | | | |
| 6 | Market Treynor Index ($IT_m$) | -0.302 | | | | -0.139 | | | |

| No | Data | 3 Months Simulation in 2018 | | | | 6 Months Simulation in 2018 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2008 | | 2013 | | 2008 | | 2013 | |
| | | Bullish | Bearish | Bullish | Bearish | Bullish | Bearish | Bullish | Bearish |
| 1 | Return portfolio $R_p$ (%) | -0.103 | -0.056 | -0.140 | -0.023 | -0.015 | -0.045 | -0.007 | -0.046 |
| 2 | Risk portfolio ($\sigma_p$) (%) | 1.845 | 1.700 | 1.616 | 1.532 | 1.891 | 1.923 | 1.621 | 1.728 |
| 3 | Treynor Index ($IT_p$) | -0.205 | -0.150 | -0.213 | -0.118 | -0.107 | -0.114 | -0.072 | -0.128 |
| 4 | Market Return $R_m$ (%) | -0.031 | | | | **-0.006** | | | |
| 5 | Market Risiko ($\sigma_m$) (%) | 1.507 | | | | 1.446 | | | |
| 6 | Market Treynor Index ($IT_m$) | -0.092 | | | | **-0.070** | | | |
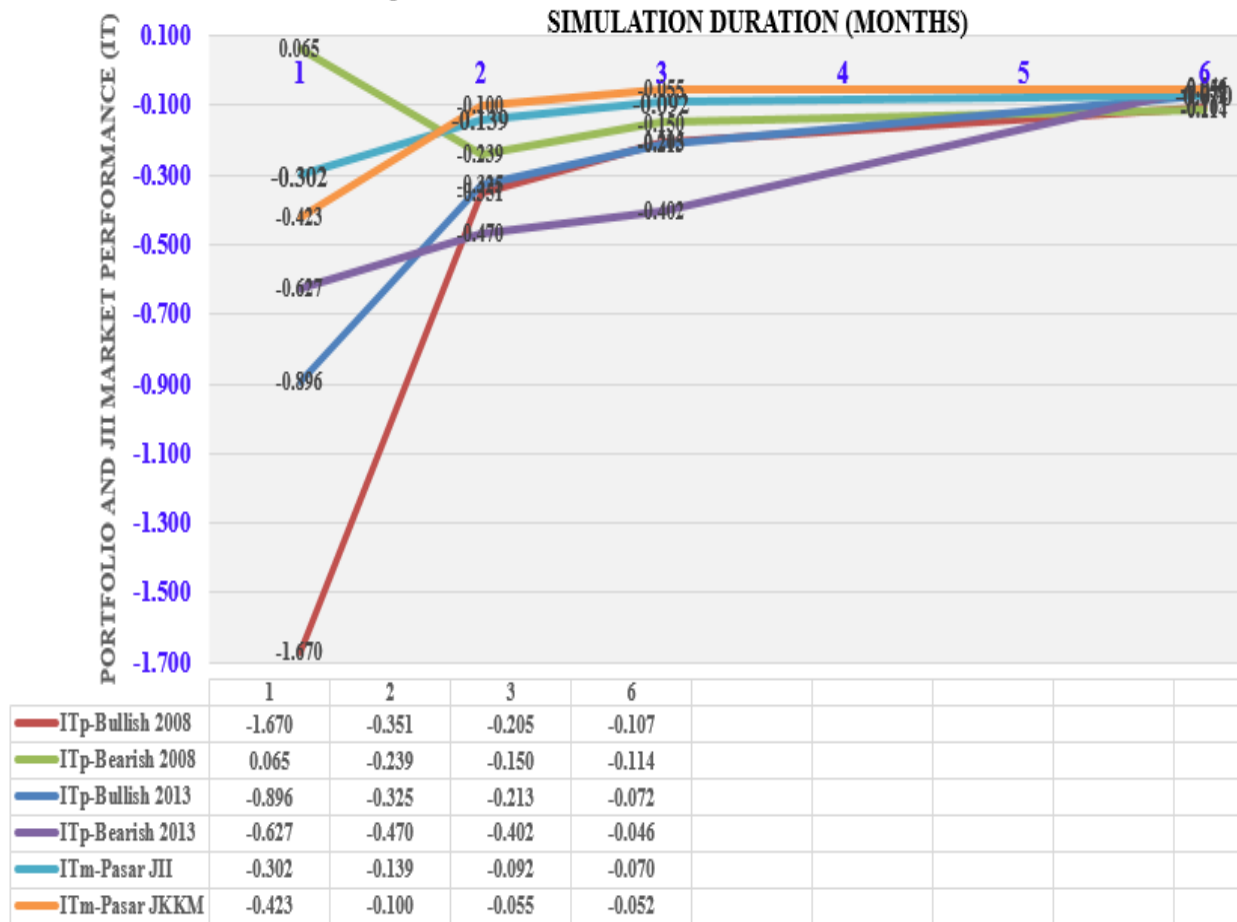
Figure 4. Performance of 4 Portfolios and JII Market with 4 Durations Simulation in 2018

Table 5 and Figure 4 described that the best performance ($R_p$ and $TI_p$) for each simulation duration: 1 month = bearish 2008 market (0.065 & 0.108%), 2 months = bearish 2008 market (-0.239 & -0.140%), 3 months = bearish 2013 (-0,118 & -0,023%) and 6 months = bullish 2013 (-0,072 & -0,007%). The portfolio performance simulation of bearish 2008 is the best one and better than others 3 duration simulation (except for 6 months duration). The best JII market performance is 6 months simulation result (longest duration), while worst market is 1 month simulation result (shortest duration). The best JII portfolio performance (0,065) in the bearish 2008 condition (1 month simulation) is better than best JII market performance (-0,070) with 6 months simulation.

Portfolio forming in the bearish market condition has better performance than in the bullish market if simulated < 6 months duration without know market condition because bearish market portfolio has best performance from simulation result in duration:1 month, 2 months and 3 months. The research result support to Wardjianto (2005) stated that JII portfolio performance ($IT_p$) which formed and prepared for bearish market condition is better than the which prepared

for bullish market condition, if conducted portfolio simulation or monitoring in the unknown market condition. It is supported by previous research results, there is significantly difference between stocks beta (systematic risk) in the bullish market and bearish market (Fabozzi and Francis, 1977; Wiggins, 1992; Bhardwaj and Brooks, 1993; Vennet and Crombez (1997)). This is also in line with research result on the Indonesian Exchange Stocks in 1994-1998 period (Tandelilin, 2001), where stock beta in the bearish market is significant less than in the bullish market. The research result strengthen previous researches, where mean stock beta and portfolio beta in the bearish 2008 market is smallest than others 3 portfolio, also when simulated in 2018 year portfolio beta in the bearish 2008 market is smallest than others 3 portfolio for duration of 1 month, 2 months and 3 months. For 6 months simulation, it is still portfolio beta from bearish market is smallest, eventhough from bearish 2013 portfolio.

**CONCLUSION**

The research result give some following conclusions: 4 best portfolios from forming stock number aspect for each market: bullish 2008 (6 stocks), bearish 2008 (2 stocks), bullish 2013 (7 stocks) and bearish 2013 (2 stocks).

The best portfolio performance in bullish 2008 is better than others 3 portfolio performance and also JII market performance. Generally portfolio performance is better than market performance for each market condition in 2008 and 2013.

Result of Independent Difference Testing for 6 hypothesis testing are: there are any portfolios performance significant different between markets of bullish 2008 and bearish 2008, , bullish 2008 and bullish 2013, bullish 2013 and bearish 2013, also bearish 2008 and bullish 2013. There are no portfolios performance significant different between markets of bearish 2008 and bearish 2013 also bullish 2008 and bearish 2013.

Portfolio of JII-bearish 2008 in 1 month simulation is the best than others 3 best portfolio in 3 durations simulation. The best portfolio which formed in the bearish market has better performance if simulated in the unknown market condition for simulation in short term, less than 6 months duration. The JII market performance with 6 months simulation is better than others 3 simulation duration. The best portfolio performance-bearish 2008 (1 month simulation) is better than the best JII market performance (6 months simulation).

In 2008 crisis year applied principal of high risk high return, where portfolio investment in the very high risk will obtain very high return, otherwise contrary for very low risk investment. The principal is contrary  and can't be applied in 2013 crisis year.

When investor will invest on non portfolio, so it is recommended to invest on stocks from consumer goods sector because has relative better performance on the bullish-bearish market

than others sector and also due to has most stock to form portfolio with big weight proportion. If investor will invest in the unknown bullish-bearish market condition, so it is recommended to invest portfolio from JII stock which formed in the bearish market condition with short term investment (less than 6 months). 2008 year crisis impact from stock/portfolio risk aspect is bigger than 2013 year crisis impact, but relatively contribute to high of stock/portfolio return and portfolio performance, so applied principal of high risk high return for long term investment, so *risk seeker* investor is suggested to invest on portfolio or group from big capitalization stock if the market is in the crisis period. When investor will invest in the crisis or bearish market condition, it is suggested for be careful and not stock selling panic, also not has disposition effect behaviour so must *wait and see* to hold profit for certain time and release loss quickly.

The opinions to researchers or academics for furthermore researches are: to use research year in the recent crisis period after 2013 year, to use others stock group based on stock type of sharia-non sharia or based on small-big capital stock category, to use calculation method for portfolio formation and evaluation (such as Markowitz Method or Constant Correlation Method and Sharpe Index or Jensen Index), to extend simulation duration to 1 year with more durations.

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