PORTFOLIO VOLATILITY OF ISLAMIC AND CONVENTIONAL STOCK: THE CASE OF INDONESIA STOCK MARKET

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Abstract

Conventional finance suggests that the higher the risk of an investment, the higher the return it should give. Nevertheless, whether Islamic stocks that offer alternative investment in the stock market suggest different risk-return relationship still needs to be investigated. This empirical study is aimed at assessing risk-return behavior of Islamic stocks. This study employs cross sectional data of portfolio developed using beta-rank and market capitalization, in which daily data will better reflect the real volatility. This study also measures volatility of both conventional and Islamic stocks using Value-at-Risk (VaR). To check whether Islamic stocks are immune from any impact of financial crisis, this study utilizes three periods of observation, i.e., before, during and after the 2008 crisis. This study assesses risk and return using Multi-index model, in which variables tested are the respective fundamental factors. Results of this study will provide more accurate approach in Islamic stocks analysis.***

Keywords: Islamic Stocks, Volatility, Risk and Return

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1. Introduction

In pursuing capital market invesments, investors still consider the trade-off between risk and return. The association has been studied for long time, both from theoretical and practical perspectives. Return is reflected by change of stock prices, while risk is represented by the price volatility indicator, i.e., standard deviation or variance. Nevertheless, whether variance is the only proxy for risk still needs to be examined.

As financial studies develop, people's view on risk also changes from static to dynamic term. Economic circumstances transform very quickly, and the associated measurement changes accordingly from static approach to dynamic one. This occurs in the conventional financial studies. What about in Islamic finance?

Islamic finance is relatively new field of study compared to the conventional one. However, this field has proven significant development in past decades. This development should be employed to find the exact explanation of risk and return, based on Al Quran and Hadits. This study focuses on empirically investigating the association between risk and return, but it will not end up with the intended explanation. Rather, it will provide appropriate basis to find the ultimate answer of syariah-compliance risk and return trade-off.

Indonesian Capital Market Supervisory Body (locally known as BAPEPAM) has released a list of syariah-compliant stocks. Several criteria are imposed to filter whether a stock is syariah-compliant and deserves to be included in the list. The most important thing in this procedure is the setting of syariah-compliance criteria. So far, the criteria is set based on book value, in addition to prohibition of alcohol, gambling, pornography, riba and non-halal materials, but not based on market value.

As market is open any type of investor, including speculators and proponents of short-selling, it is important to prevent moral hazard by setting appropriate filter. In this context, assessment on the historical data of stock may help minimize fraud in the market. Classifying stock volatility is an idea that can be implemented in syariah-compliant financial product market. Engle (1993, 2009) posts that volatility of a stock indicates the built-in risk and may

be difficult to anticipate. In the country level, increased variance values and large market change are sometimes found, and known as volatility clustering. Febrian and Herwany (2009) find high volatility in the South East Asian Market and many volatility clustering. This finding further implies that risk in stocks is determined more by market value than by book value.

Ideally, syariah-compliant stock prices are less fluctuative, less associated with macroeconomic indicators and, therefore, less risky and relatively immune to financial crisis. The main problem is whether the set criteria have been truly syariah-compliant. Therefore, it is interesting to check whether stock prices are not influenced by macroeconomic fluctuation and immune to shock; whther Islamic stocks bear low risk; and whether there is portfolio strategy to secure investment in Islamic stocks. These questions need to be answered.

This paper is organized as follows. Session 2 elaborates literatures on the association of risk and return, as well as empirical studies in islamic stocks. Session 3 explains data and methodology, including stages of individual stock calculation, portfolio formation, and risk-return assessment. Session 4 reveals the results of multifactor model and portfolio volatility empirical investigation. The last session covers research implication and conclusion.

2. Literature Review

2.1. Risk and Return

In assessing performance of a stock, an investor always encounter the trade-off between risk and return. Some previous studies employed market risk premium, which was firstly introduced by Sharpe (1965). Market risk premium shows the sensitivity of individual stock price to market movement, known as beta. When examining risk and return of portfolio Fama and French (1995) employed variable excess return of portfolio as the independent variable, and market risk premium of portfolio as dependent variable. Some studies carried out in Indonesia prove that market risk premium significantly influences the change of stock return (Febrian & Herwany, 2010; Ferdian, Omar and Dewi, 2011). The portfolio is used in the assessment to reduce bias from individual stocks. Some macroeconomic factors employed in such assessment include unanticipated of inflation, unanticipated of interest rate, and unanticipated of exchange rate, like in the study done by Burmeister, Roll and Ross (1994).

Unanticipated Inflation Changes

The generated definition of inflation is an increase in the general price level, which measures the weighted average of the goods and services in the economy. In practice the measure is a price index. The opposite of inflation is deflation, in which case the general price level falls. Price index is a measure of the overall price level that consists of several components, among others: the CPI (Consumer Price Index), GDP (Gross Domestic Product) deflator and the index of manufacturers. CPI is the purchase cost of items at different times. The inflation rate is expected in the future, at the beginning of the period for any of the information includes: historical inflation rates, interest rates and other economic variables that affect the rate of inflation (Burmeister, Roll, & Ross, 1994).

The risk of inflation is a surprise that was not anticipated and is calculated at the end of the period. In other words, the difference between actual inflation compared to the inflation rate expected at the beginning of the period.

Most stocks have negative exposure to inflation ($B < 0$). Positive unanticipated inflation ($f > 0$) and causes a negative contribution to the return, and negative unanticipated inflation ($f < 0$)/deflation shock will lead to a positive contribution to return. As such, sales of products of industries that tend to have the luxuries of the highest sensitivity to the risk of inflation will fall, This is caused by the demand from consumers for goods which will fall when real income is eroded by inflation. In contrast products whose demand is less sensitive to price changes are not strongly affected by inflation (Burmeister et al., 1994). The results of Flavin and Wickens (2003); Al-Khazali (2003); Bekaert et al. (1998); and Hardouvelis (1987) found that there is a positive/negative returns whereas with N. F. Chen et al. (1986); K. C. J. Wei and Wong (1992); Mateev and Videv (2008); Adrangi, Chatrath, and Raffiee (1999); Ahmed and Lockwood (1998); He and Ng (1994); and Kane et al. (1996) proved that there is a positive/negative relationship with unexpected inflation.

Unanticipated Interest Rate Changes

The interest rate is a benchmark often used by investor in an investment. The sensitivity of its movement will also reflect in, investors behaviour, higher interest rates will cause investors to switch from banks to capital markets, and vice versa. Factor in interest rates that cannot be anticipated is one of the considerations in investment. This is because changes in these factors could be due to increased pressure from other variables that add to the uncertainty, As such, variable cash flow to be received in the future will also change. Sharpe (1992); Kane et al. (1996); Spiro (1990); Hondroyiannis and Papapetrou (2001); Schwert (1989); and Petkova (2006) found a negative relationship between interest rates and stock returns.

Unanticipated of Exchange Rate Change

That exchange rate changes have two effects on stock return, if there is a change in the interest rate where interest rates rise, returns from stocks will go down due to the depreciation of the domestic currency against the U.S. dollar for example. This occurs due to the increased risk in the country, which might possibly lead to capital flight out of the country, especially if investors from outside dominate the level of stock ownership in the country. If this happens automatically investors will sell their shares and the resulting stock price index will go down and of course the impact is the decline in the rate of profit. Even RP/U.S. significantly associated with stock returns in the period 1989-1992 (Roll, 1995). Most stocks have a negative Exposure to exchange rate ($B < 0$). Surprise positive rate ($f > 0$) causes a negative contribution to the return, and Surprise negative rate ($f < 0$)/deflation shock will lead to a positive contribution to the return (Burmeister et al., 1994). The results of Mateev and Videv (2008); Hondroyiannis and Papapetrou (2001) show that the exchange rate is positively/negatively associated with stock returns.

Unanticipated of Spread Changes

Spread is the difference between the two-interest rates. In this research, spread is the difference between the interest rates on deposits issued by banks with the SBI rate published by the central bank in this case, Bank Indonesia. In theory always the deposit interest rate has always been above the SBI, thus spread is always positive. Otherwise, if the deposit interest rate is smaller than the SBI spread is negative. The level of spread changes depends on the ups and downs of both variables. Rising levels in spread could be due to rising interest rates or a decline in deposit interest rate of SBI. While the decrease in spreads may be due to lower interest rates and higher deposit interest rate of SBI. This of course adhered to the assumption that one of the two variables remains constant. If both interest rates move up the constant changes in the rate of spread will remain and vice versa. The higher spreads due to rising deposit rates will also affect the rate of increase in lending rates. This will have an impact on lending by banks, at which time the interest rate increases, typically banks SBI will also raise lending rates. This of course, affects the distribution of substandard loans, because new investors will borrow loans if interest rates decrease. If this happens repeatedly it will also affect the growth and expansion of the company. As a result, investors will use the money to invest in stocks and funds on deposit. The bigger the spread, the smaller the amount of lending which may resulted in rising stock returns. Conversely, the smaller the spread, the larger the loan so that it will lower the rate of return of the stock. Thus the spread and stock returns are positively associated.

In addition to macroeconomic variables, fundamental variables should be assessed to evaluate the association of risk and return, such as Earning per share (EPS), price to book value (PBV), and price to earning ratio (PER). Other factors can be used to check liquidity, e.g., trading volume and frequency. Several previous studies, like Bhandari (1988), Daniel and Titman (1997) and Khan (2008), find positive correlation between PER and stock return, especially during a financial crisis. Bali and Cakici (2007) find negative correlation during the upward and downward market. Girard and Sinha (2008) find positive relation between PBV and stock return.

Assessment on variables should be done using financial crisis and non financial crisis data to measure consistency of variables in revealing risk-return trade-off. In this study, portfolio formation employs ranking on the basis of market value and beta, like studies done by Fama and French (1995, 1996), which is necessary to screen assets based on market capitalization and beta. However, the beta-based portfolio seems to fail to capture stock volatility. Therefore, this study utilizes beta estimation with volatility model. Volatility usually changes in short term, thus the use of daily data is crucial. Such a portfolio formation is expected to be able to capture stock volatility, so that risk information can explored further.

Islamic Stock Market in Indonesia

Islamic Index in Indonesia was firstly introduced when Indonesian Capital Market Supervisory Body an Indonesian Stock Exchange launched Jakarta Islamic Index. The supervisory body releases a list of Islamic stocks every semester. The list is composed bsed on syariah-compliance criteria. Jakarta Islamic Index consists of 30 stocks that are selected based on market capitalization ranking.

Empirical of Islamic Stock

There has been very limited number of empirical investigations on Islamic stocks. Derigs and Marzban (2009), among others, compare Islamic and conventional portoflios using portfolio organization approach. They find that by developing portfolio strategy based on market capitalization, syariah-compliant portfolio can perform as good as that of conventional portfolio. They recommend the use of portfolio, instead of individual stocks due to some restriction in Islamic stocks. Guyot (2012), using Dow Jones Islamic Index and regional index, posts that Islamic Index is more sensitive to geopolitical issues, like 9-11 Attack, and subprime crisis. Islamic Index has no cointegration with othe indices and is therefore reliable for longterm portfolio diversification. Another important finding is that

Islamic Index is more efficient than other indices. In addition, a study by Derbel, Bouraoui and Dammak (2011), using VAR Model, finds that Islamic Finance model can reduce impact of crisis and that transmission of crisis impact is weak in countries practicing Islamic finance.

Using Kuala Lumpur Shariah Index (KLSI), RHB Islamic Index (RHBII) and Kuala Lumpur Stock Exchange as market proxy in Malaysia, Yusop (2008) finds that Islamic stock beta is positive and below 1, inferring that the Islamic stock risk is less than market risk. The performance of Islamic Index is not better than that of conventional index. This conclusion is supported by Selim (2008), who finds low estimated beta for syariah financing.

The above expalanation on empirical studies shows that the previous studies tend to use Islamic Index, instead of individual stocks. The use of Islamic stocks in portfolio formation will provide more information and can capture volatility. Therefore, this study employs individual Islamic stocks in portfolio formation and multifactor model to assess consistency of the observed variables.

Multifactor Model

This model is more flexible than the two previous models that require not only a proxy of the market portfolio alone. Factor can be derived from statistical approaches that typically use factor analysis or principle component analysis, but can also use a proxy variable macroeconomic and fundamental stock or better known as the theoretical approach. Here is the formula and the concept of multifactor models (Campbell et al., 1997) where:

$$R_t = a + Bf_{Kt} + \varepsilon_t \tag{2.1}$$

$$E[e_t] = 0 \tag{2.2}$$

$$E[\varepsilon_t \varepsilon_t'] = \sum \tag{2.3}$$

$$E[f_{Kt}] = \pi_{fK} \tag{2.4}$$

$$E\left[\left(f_{Kt} - \pi_{fK}\right)\left(f_{Kt} - \pi_{fK}\right)'\right] = \Omega_K \tag{2.5}$$

$$Cov[f_{Kt}, \varepsilon_t'] = 0 \tag{2.6}$$

Where B is a (N x K) matrix of sensitivities, F_{KT} is the (K x 1) vector of factor realizations and a and ε_t are the (N x 1) vector of asset return intercepts and disturbances, respectively 0 is (K x N) matrix of zeroes

3. Data and Methodology

Data

This study utilizes secondary data, i.e., prices, book to market value, price to earning ratio, earning per-share, trading frequency, and trading volume of all stocks listed at the Indonesian Stock Exchange in the period of 2007-2010. This period is chosen as Indonesian Stock Exchange launched Jakarta Islamic Index in 2007. In addition, all decrees by Ministry of Finance regarding Syariah Stock List are used as source of data. This study also employs macroeconomic data form Bank Indonesia (the central Bank), including inflation rate, interest rate, and exchange rate of IDR/USD.

Methodology

The data is selected based on purposive sampling approach. Stocks selected should be actively traded, i.e., at least once a week. They should also be available consistently in all observed periods. This study employs daily data to estimate beta and variance. The data is updated every year using rolling windows to get 32 periods of observation. The observation is conducted using four periods, i.e., full-period (2007:01-2010:07), before crisis (2007:01-2008:09), during crisis (2007:11-2009:11), and after crisis (2009:01-2010:07). The division of periods is based on the impact of USA crisis in Indonesia, not based on the occurence of the crisis in the USA.

Analysis Method

3.1.1. Return of Individual Stock

Return on stock consists of two sources, that is, return from price fluctuation (capital gain/loss) and from dividend. Stock rate of return is well known as Simple Net Return and can be calculated using the following formula (Campbell et al., 1997):

$$R_t = \frac{P_t + D_t}{P_{t-1}} - 1 \tag{2.7}$$

where stock return is obtained from the price change plus dividend. Return of stock is calculated for one period, which can be daily, weekly, monthly or annually. If stock price moves randomly, then stock return should follow random walk. Most of financial time–series data follow the random walk character. If the future stock price is not the same as the present price and the previous price, it can be said that the market is efficient or the associated price follows random walk. In the calculation of stock rate of return, this study employs monthly stock price of the companies listed in the ISX during the period of January 2007 - July 2010 The return can be

calculated in the form of logarithm, or widely known as continuously compounded return on dividend paying. The associated formula:

$$r_t = \ln(P_t + D_t) - \ln(P_{t-1}) \quad (2.8)$$

Where r_t is stock return in period of t in the form of log, P_t is stock Price in the period of t, D_t is Dividend paid in period of t, P_{t-1} is stock Price in period of t-1. Notation r_t is used to differentiate simple net return from continuously compounded return, where r_t is defined as Natural Logarithm of gross return $(1+R_t)$. Thus, it will be easier to use this formula to calculate return in multiperiods. Besides, when we use r_t, dynamic of stock return can be captured well, especially if the employed data is monthly data (Campbell et al., 1997). Balance of the results of the two methods is so small. This procedure may enable us to avoid negative value so that the asset price is always positive. However, there is an obstacle if we calculate portfolio return as the Log of Sum gives different results from that of the Sum of log. Therefore, this procedure needs some adjustments. The necessary adjustment on the calculation of individual stock return using Log ends up with the following formula $r_{pt} \approx \sum_{i=1}^{N} X_{ip} \cdot r_{it}$ this formula lets us utilize fund approximation to ease the calculation and gives very small balance between results of the two methods.

3.1.2. Stock Market Index Data Based on VWMV

Stock Market Index is selected as a proxy of rate of market return based on Value Weighted Market Value (VWMV) and is calculated using the following formula:

$$r_{mt} = \ln\left(\frac{ISX_t}{ISX_{t-1}}\right) \quad (2.9)$$

where r_{mt} is natural logarithm of rate of market return in month t, ISX_t = Market price index in month t, ISX_{t-1} = Market price index in month t-1

3.1.3. Market Capitalization Data

Market capitalization value (market value) for the beginning period is calculated by multiplying stock price of the month end with number of outstanding stocks recorded in the beginning of the following year. For instance, when we calculate the market value for year 2008, stock price per-share of the end of December 2007 is multiplied by the number of outstanding stocks in January 2007. Formula used in this measurement is $MV_{it} = P_{it-1} \times S_{it}$ where MV_{it} is Market Value-i in month t, P_{it-1} is stock price-i in month t-1, S_{it} is number of outstanding stocks in month t.

In calculating stock return and dividend, this study does necessary adjustment to stock split, to avoid sharp decline of stock price data, as well as to minimize potentially high variance. For example, suppose the split factor is 2, the stock split 2 for 1 will cause a 50% decline in stock price stock, thus the price should be adjusted by multiplying it with the factor.

3.1.4. Return Portfolio

Portfolio return is calculated using the weighted average method. The variable is calculated using this formula:

$$R_{pt} = \sum_{i=1}^{N} w_{it} R_{it} \quad (2.10)$$

where : $\sum_{i=1}^{N} w_{it} = 1$, w_{it} is proportion of investor's wealth in asset-i at the end of period t-1, *where* $w_{it} = w_i = 1/N$, assuming that investor puts his wealth in rupiah in each of N security with equal weight.

3.1.5. Portfolio Formation

In the beta and variance estimation, daily data is converted into monthly data, tomatch macroeconomic data and stock fundamentals. In the next stage, the estimation results are used to form a portfolio. In the beta estimation on individual stock, Single Index Model is employed, where individual stock return is regressed to the market return. The estimation period consists of 60 days, which is sufficient, according to previous studies. The estimated beta uses the estimated system of ARCH variance and covariance of Multivariate ARCH/Multivariate EGARCH-M. Both coefficients of the estimation are the basis to form a portfolio DIAG-VECH (p,q)

The model is Diag-VECH (p, q) as follows: Diag-VECH (p, q), (Bollerslev, Engle, & Wooldridge, 1988):

$$vech(H_t) = vech(A_0 A_0') + \sum_{i=1}^{q} \left(\tilde{A}_i vech(\varepsilon_{t-1}\varepsilon_{t-1}')\right) + \sum_{j=1}^{p} \left(\tilde{B}_j vech(H_{t-j})\right) \quad (2.11)$$

Where the matrices $\tilde{A}_i$ and $\tilde{B}_j$ are assumed diagonal. Thus, the number of parameters is reduced to $\left(n(n+1)/2\right)(1+q+p)$, as no interaction is allowed between the different conditional variance and covariance. So for n=3, for example, the diagonal VECH (1,1) model requires the estimation of 18 parameters. Bollerslev used this model to analyze returns on Bills, bonds and stocks. Z. Ding and Engle (2001) gave sufficient conditions for the diagonal multivariate GARCH (1,1) model to be positive definite and proposed four models that are nested in the multivariate diagonal multivariate GARCH (1,1). Therefore, to cope with an unstable beta, this study uses two approaches. The first is the focus on sample selection, and the second is to use volatility models, that is, diag-vech (p, q), which is a model of multivariate GARCH.

Portfolio is formed based on two ranking mechanisms. The first ranking is based on market capitalization in a decile. The second ranking is done in the respective decile based on beta (decile). By doing so, we have 100 portfolios that are used to assess risk and return, as well as macroeconomic and fundamental variables. The second ranking is necessary to examine the consistency of stock performance.

3.1.6. Multifactor Model

The next stage is to test the association between risk and return using multifactor model. In this test, 100 portfolios are examined. The dependent variable is portfolio return, while independent variables include EPS, PER and PBV, trading volume, trading frequency, inflation rate, interest rate, and exchange rate, in addition to spread. The last variable is balance between bank interest rate and risk free rate.

The Multifactor Model using fundamental and macroeconomic factors is as follows:

$$E\left(R_p\right) - r_f = /_{0t} + /_1 bp_{1t} + /_2 bp_{2t} + /_3 bp_{3t} + /_4 bp_{4t} + /_5 bp_{5t} + ... + e_{pt} \quad (2.12)$$

b_{pi} is independent variable.

The above equation is examined through simulations, The first stage simulation utilizes market risk premium, and the second one uses controlling variable, i.e., Market capitalization. The third stage assesses risk and return using macroeconomic factors, while the fourth one combines all macroeconomic variables with controlling variable, i.e., market risk permium.In the fifth simulation, the examination employs fundamental factors and the two liquidity proxies. The sixth simulation combines all fundamental factors with controlling variable, i.e., market capitalization. The last simulation combines all variables used in the earlier stages.the above simulations are also conducted on three different portfolios, i.e., Islamic stock portfolio, conventional stock portfolio, and portfolio of combined stocks.

4. Empirical Analysis

4.1. Descriptive Statistic

The data selection is done based on division of observation periods, i.e., full-period, before-crisis period, during-crisis period and after-crisis period. Number of sample varies, ranging from 9.993 stocks to 99.648 stocks. Elaboration of samples can be seen on Table 1.

Table 1. Selected Sample

Period	CI	C	I
Full Period (Jan 2007-Jul 2010)	99,648	57,751	41,897
Before Crisis (Jan 2007-Sept 2008)	31,210	17,965	13,245
During Crisis (Nov 2007-Nov 2009)	43,636	24,977	18,659
After Crisis (Jan 2009-Jul 2010)	24,802	14,809	9,993

Source: Processed data

The descriptive statistics (appendix Table A) shows that 100 mixed-portfolios (C+I) have positive excess return of portfolio of 0.008 for Full period assessment, while those of conventional (C) and Islamic (I) have average of 0.009 and 0.004, respectively. In the combined portfolio (C+I) analysisi, data is not normally distributed, except for variables of excess return of portfolio, risk premium market and unanticipated interest rate. In the conventional (C) portfolio analysis, all variables are not normally distributed, excluding excess return of portfolio, unanticipated interest rate and unanticipated spread. Contrarily, in the Islamic

portfolio (I), almost all variables are normally distributed.

4.2. Result

4.2.1. Full Period

Table 2 shows the results of full period examination on all portfolios. The results indicate that portfolio return transforms to be positive when market risk premium changes, regradless type of the observed portfolio. In other words, the cahnge in market index influences all returns of portfolio. When market value factor is added to equation 1, market risk premium of portfolio is still significant. Similarly, addition of market capitalization factor in the equation 1 makes all portfolios significant, except for the mixed portfolio.

Meanwhile, analysis on the macroeconomic factors shows that unanticipated exchange rate negatively influences excess return of conventional and Islamic portfolio, but not that of combined portfolio. Only Islamic portfolio is affected by the change in unanticipated exchange rate and interest rate. When market risk premium is added into macroeconomic equation, only unanticipated exchange rate shows negative influence on the change of portfolio risk premium.

In the cross sectional regression analysisi using fundamental variables, PBV and PER are significant in the change of portfolio risk premium. EPS, VOL and FREQ do not substantially influence the change in excess return of Islamic and mixed portfolio. In the meantime, when market capitalization as control variable is added to the equation, PBV and PER pose significant negative impact on the excess return of Islamic and conventional portfolios.

In the analysis using equation 7, in which all variables of market risk premium, market capitalization, macroeconomic and fundamental function as sebagai independent variable, market risk premium positively influence excess return of all portfolios. Unanticipated exchange rate negatively affects excess return of Islamic portfolio.

4.2.2. Before Crisis

The results of risk-return analysis using before-crisis data can be seen on Tabel 3. Equation 1 analysis shows that market risk premium positively influences excess return of combined and conventional portfolios. When market capitalization is included in the Equation 2, it is found that market risk premium of portfolio are still significant, and that market capitalization significantly positively affects excess return of portfolio.

On the other side, none of the macroeconomic indicators influences the change in excess return of any portfolio. Equation 4 analysis shows that market risk premium of portfolio is significant and allmacroeconomi variables are not significant. PBV and trading frequency negatively influence the change in excess return of combined and Islamic portfolios. The two variables arestill significant when variable market capitalization is added into the equation.

In the Equation 7 analysis, market risk premium is significant in combined and conventional portfolios. Trading frequency is negatively correlated with the change in excess return of portfolio, while PBV positively affects the change in excess return of Islamic portfolio. PER is positivley associated with the change in excess return of portfolio.

4.2.3. During Crisis

Table 4 reveals the results of risk-return analysis using during-crisis data. During the crisis, market risk premium of portfolio consistently positivley influence the change in excess return of portfolio. In the macroeconomic factors analysis, interest rate is negatively associated with return of mixed portfolio (C+I). Spread positively affects return of conventional portfolio. Meanwhile, exchange rate and interest rate pose negative impact on the return of Islamic portfolio.

In fundamental aspect, EPS is negatively associated with excess return of mixed and conventional portfolios. PBV negatively influences excess return of Islamic portfolio, while trading volume is positively correlated with excess return of Islamic portfolio. PER is negatively associated with excess return of portfolio, but it turns to insignificant when market capitalization is added into Equation 6.

Results of the regression on all variables show that market risk premium is always positive significant. Market capitalization positively influences excess return of any observed portfolio.

Moreover, analysis on factors affecting conventional portfolio reveals that unanticipated inflation and Spread show positive signs, while EPS and PBV pose negative signs. None of macroeconomic variables poses significant impact on the return of Islamic PER and trading volume are significant factors to Islamic portfolio return, in negative and positive direction respectively.

4.2.3. After Crisis

The impact of market dynamic after the crisis on Indonesian stock market is not really substantial, as can be examined on Table 5. Market risk permium is not significant in Equation 1, 2, and 3. Spread shows negative influence on the excess return of mixed and Islamic portfolios. Market capitalization is positively correlated with the change in excess return of conventional and mixed portfolio. None of macroeconomic and fundamental variables are significant factors to Islamic portfolio.

Table 2. Full Period

Portfolio	Equation 1: $R_p - R_f = a + b_1(R_m - R_f) + e$											
	CONS	RPM	MV	UNEXCH	UNCPI	UNINT	UNSPREAD	EPS	PBV	PER	VOL	FREQ
C+I	-0.0128	0.9969***										
	(0.0058)	(0.2787)										
C	-0.0148	1.1268***										
	(0.0039)	(0.1978)										
I	-0.0115	1.0315***										
	(0.0036)	(0.2026)										
	Equation 2: $R_p - R_f = a + b_1(R_m - R_f) + b_2 MV + e$											
C+I	-0.0127	1.0008**	-0.0007									
	0.0058	(0.2817)	(0.0019)									
C	-0.0143	1.0229***	0.0173***									
	0.0038	(0.1828	(0.0021)									
I	-0.0120	0.9697***	0.0028**									
	0.0036	(0.2002)	(0.0017)									
	Equation 3: $R_p - R_f = a + b_1 UNEXCH + b_2 UNCPI + b_3 UNINT + b_4 UNSPREAD + e$											
C+I	0.0021			-1.6908	-5.1797	-25.9117	-0.8669					
	0.0110			(1.1277)	(11.1885)	(17.1030)	(27.8249)					
C	0.0087			-1.7380*	1.0524	-7.1748	22.8496					
	0.0069			(0.9646)	(6.7645)	(15.7893)	(20.3462)					
I	0.0106			-2.2529**	8.7718	-23.1490*	20.8098					
	0.0081			(0.9557)	(9.8235)	(13.7425)	(19.2306)					
	Equation 4: $R_p - R_f = a + b_1(R_m - R_f) + b_2 UNEXCH + b_3 UNCPI + b_4 UNINT + b_5 UNSPREAD + e$											
C+I	-0.0122	0.6387**		-1.5996	-6.4426	-16.5504	-5.1960					
	0.0111	0.2935		(1.1010)	(10.9411)	(17.6973)	(27.5405)					
C	-0.0110	0.9031***		-1.2774	-0.2227	3.7094	16.8515					
	0.0072	0.1937		(0.9270)	(6.1318)	(14.7529)	(18.9107)					
I	-0.0057	0.7674***		-2.1959**	3.2130	-12.9563	16.0623					
	0.0086	0.2282		(0.9321)	(9.5735)	(13.1615)	(20.0592)					

Table 2 (Continued)

Portfolio	CONS	RPM	MV	UNEXCH	UNCPI	UNINT	UNSPREAD	EPS	PBV	PER	VOL	FREQ
	Equation 5: $R_p - R_f = a + b_1EPS + b_2PBV + b_3PER + b_4VOL + b_5FREQ + e$											
C+I	0.0068							-7.46E-06	-0.0036**	0.0010**	1.13E-07	0.0001
	0.0029							(5.25E-06)	(0.0017)	(0.0005)	(9.91E-07)	(0.0003)
C	0.0089							1.59E-06	-0.0009	0.0003	-5.04E-07	0.0001
	0.0034							(7.46E-06)	(0.0009)	(0.0002)	(9.47E-07)	(0.0002)
I									-	-		
	0.0059							0.0005	0.0064***	0.0016***	7.46E-06	-0.0001
	0.0042							(0.0004)	(0.0023)	(0.0003)	(0.00002)	(0.0002)
	Equation 6: $R_p - R_f = a + b_1MV + b_2EPS + b_3PBV + b_4PER + b_5VOL + b_6FREQ + e$											
C+I	0.0069		-0.0007					-7.41E-06	-0.0036**	0.0010**	4.07E-07	0.0001
	0.0030		(0.0039)					(5.31E-06)	(0.0017)	(0.0005)	(1.92E-06)	(0.0003)
C	0.0061		0.0202***					-4.30E-07	-0.0011	0.0004	-2.77E-07	0.0001
	0.0030		(0.0028)					(6.74E-06)	(0.0010)	(0.0003)	(9.21E-07)	(0.0002)
I									-	-		
	0.0032		0.0038*					0.0010**	0.0071***	0.0015***	9.37E-06	-0.0001
	0.0042		(0.0021)					(0.0004)	(0.0022)	(0.0003)	(0.0000)	(0.0002)
	Equation 7: $R_p - R_f = a + b_1(R_m - R_f) + b_2MV + b_3UNEXCH + b_4UNCPI + b_5UNINT + b_6UNSPREAD + b_7EPS + b_8PBV + b_9PER + b_{10}VOL + b_{11}FREQ + e$											
C+I	-0.0122	0.6752**	-0.0021	-1.8313	-8.0180	-15.1500	-5.6970	-1.77E-06	-0.0023	0.0005	2.23E-07	-0.0002
	0.0113	(0.3153)	(0.0041)	(1.1080)	(11.1888)	(18.3165)	(29.0394)	(7.17E-06)	(0.0015)	(0.0004)	(1.98E-06)	(0.0003)
C	-0.0100	0.8748***	0.0165***	-0.9293	1.3046	6.5608	16.9663	5.64E-06	-0.0006	0.0002	-6.71E-07	0.0000
	0.0071	(0.1904)	(0.0024)	(0.8917)	(6.1137)	(15.0070)	(19.7541)	(7.72E-06)	(0.0009)	(0.0003)	1.03E-06	(0.0001)
I										-		
	-0.0033	0.6716***	0.0017	-1.9102**	4.8290	-13.9996	12.4476	0.0004	-0.0027	0.0014***	0.00002	-0.0002
	0.0081	(0.2314)	(0.0018)	(1.0886)	(9.0138)	(13.3783)	(22.8122)	(0.0004)	(0.0021)	(0.0003)	0.00003	(0.0002)

Source: Proceed

Note: C = Conventional portfolio, I = Islamic portfolio, each assessment model uses 100 portfolios, the estimation employs variance covariance estimation (VCE) with significance level of 10% (*), 5% (**), dan 1% (***). RPM=risk premium market, MV=market capitalization, UNEXCH=unanticipated of exchange rate, UNCPI=unanticipated of inflation, UNINT=unanticipated of spread, EPS= Earnings per share, PBV=price to book value, PER=price to earnings ratio, VOL=volume of trading, FREQ=frequency of trading

Table 3. Before Crisis

Portfolio	Equation 1: $R_p - R_f = a + b_1(R_m - R_f) + e$											
	CONS	RPM	MV	RESEXCH	RESCPI	RESINT	RESSPREAD	EPS	PBV	PER	VOL	FREQ
C+I	-0.0015	0.6884***										
	0.0023	(0.1307)										
C	-0.0042	0.8093										
	0.0032	(0.1778)										
I	0.0087	-0.0757										
	0.0024	(0.2931)										
	Equation 2: $R_p - R_f = a + b_1(R_m - R_f) + b_2 MV + e$											
C+I	-0.0023	0.5710***	0.0083***									
	0.0023	0.1284	0.0017									
C	-0.0051	0.7041***	0.0121***									
	0.0031	0.1484	0.0007									
I	0.0070	-0.3124	0.0059***									
	0.0023	0.2330	0.0010									
	Equation 3: $R_p - R_f = a + b_1 UNEXCH + b_2 UNCPI + b_3 UNINT + b_4 UNSPREAD + e$											
C+I	0.0249			1.3848	13.3409	-13.9782	20.5487					
	0.0134			1.4769	9.0511	36.4564	28.3486					
C	0.0016			0.2769	-1.1142	-32.9023	-28.4533					
	0.0149			1.1195	6.3876	32.0690	36.4459					
I	0.0182			0.2846	2.2638	6.4725	23.0866					
	0.0088			1.5911	3.2404	16.7934	20.7147					
	Equation 4: $R_p - R_f = a + b_1(R_m - R_f) + b_2 UNEXCH + b_3 UNCPI + b_4 UNINT + b_5 UNSPREAD + e$											
C+I	-0.0002	1.2606***		1.9776	12.6414	11.5307	23.5093					
	0.0145	0.2382		1.4457	8.7830	34.4774	28.5928					
C	-0.0101	1.0655***		0.9101	0.0973	-10.5916	-8.2903					
	0.0151	0.2783		1.1002	6.0514	27.3778	33.7397					
I	0.0184	-0.0598		0.2971	2.3621	5.9443	22.6497					
	0.0085	0.3022		1.5894	3.2377	16.2627	21.2278					

Table 3 (Continued)

Portfolio	CONS	RPM	MV	RESEXCH	RESCPI	RESINT	RESSPREAD	EPS	PBV	PER	VOL	FREQ
	Equation5: $R_p - R_f = a + b_1EPS + b_2PBV + b_3PER + b_4VOL + b_5FREQ + e$											
C+I	0.0186							-0.0011	-0.0241***	0.0026	0.0000	-0.0004
	0.0049							0.0017	0.0087	0.0032	0.0000	0.0003
C	0.0106							0.0221	0.0318	0.0033	0.0000	-0.0002
	0.0048							0.0134	0.0293	0.0115	0.0000	0.0001
I	0.0103							0.0020	-0.0115	-0.0023	0.0000	-0.0001***
	0.0032							0.0016	0.0075	0.0021	0.0000	0.0000
	Equation 6: $R_p - R_f = a + b_1MV + b_2EPS + b_3PBV + b_4PER + b_5VOL + b_6FREQ + e$											
C+I	0.0142		0.0090					-0.0010	-0.0239***	0.0031	0.0000	-0.0003
	0.0050		0.0018					0.0017	0.0083	0.0031	0.0000	0.0003
C	0.0083		0.0124***					0.0156	0.0238	0.0027	0.0000	-0.0001
	0.0045		0.0006					0.0108	0.0274	0.0109	0.0000	0.0001
I	0.0078		0.0057***					0.0006	-0.0134***	-0.0021	-8.85E-06	-0.0001***
	0.0028		0.0011					0.0014	0.0045	0.0020	6.25E-06	0.0000
	Equation 7: $R_p - R_f = a + b_1(R_m - R_f) + b_2MV + b_3UNEXCH + b_4UNCPI + b_5UNINT + b_6UNSPREAD + b_7EPS + b_8PBV + b_9PER + b_{10}VOL + b_{11}FREQ + e$											
C+I	0.0108	1.0149***	0.0072***	1.7496	12.2490	-4.2911	28.2844	-0.0003	-0.00568	0.00312	-0.00003	-0.0003
	0.0139	0.2045	0.0021	1.1957	7.5046	25.0080	28.5808	0.0007	0.00774	0.00281	0.00003	0.0003
C	-0.0015	0.9951***	0.0113	-0.3385	-0.6818	7.0698	18.4932	0.0139	0.02478	0.01320*	-0.00002	-0.0002*
	0.0132	0.2630	0.0007	1.0499	6.0666	23.9382	27.8733	0.0106	0.02513	0.00771	0.00002	0.0001
I	0.0170	-0.3050	0.0058***	-0.6323	1.7338	0.8226	20.7262	0.0011	-0.01337***	-0.00213	-7.32E-06	-0.0001**
	0.0074	0.2459	0.0011	1.0695	3.5810	15.2226	21.7298	0.0015	0.00479	0.00213	6.58E-06	0.0000

Source: Proceed

Note: C = Conventional portfolio, I = Islamic portfolio, each assessment model uses 100 portfolios, the estimation employs variance covariance estimation (VCE) with significance level of 10% (*), 5% (**), dan 1% (***). RPM=risk premium market, MV=market capitalization, UNEXCH=unanticipated of exchange rate, UNCPI=unanticipated of inflation, UNINT=unanticipated of spread, EPS= Earnings per share, PBV=price to book value, PER=price to earnings ratio, VOL=volume of trading, FREQ=frequency of trading

Table 4. During Crisis

Portfolio	Equation 1: $R_p - R_f = a + b_1(R_m - R_f) + e$											
	CONS	RPM	MV	RESEXCH	RESCPI	RESINT	RESSPREAD	EPS	PBV	PER	VOL	FREQ
C+I	-0.0135	0.6147***										
	0.0028	(0.1531)										
C	-0.0107	0.8078										
	0.0027	(0.1372)										
I	-0.0121	0.9731										
	0.0040	(0.1682)										
	Equation 2: $R_p - R_f = a + b_1(R_m - R_f) + b_2 MV + e$											
C+I	-0.0137	0.6149	0.0011									
	0.0029	(0.1535)	(0.0010)									
C	-0.0171	0.6308	0.3122***									
	0.0022	(0.1143)	(0.0911)									
I	-0.0130	0.9494	0.0014									
	0.0040	(0.1672)	(0.0003)									
	Equation 3: $R_p - R_f = a + b_1 UNEXCH + b_2 UNCPI + b_3 UNINT + b_4 UNSPREAD + e$											
C+I	-0.0003			-1.2719	5.6634	-22.4286	-3.3719					
	0.0060			(0.7879)	(9.2335)	(9.2831)	(14.3754)					
C	-0.0024			-0.8914	12.7703	12.7140	36.4548**					
	0.0072			(0.6210)	(8.1467)	(10.5188)	(15.0657)					
I	0.0055			-2.4036**	3.5258	-25.6200**	1.8742					
	0.0120			(1.0215)	(14.4103)	(13.0237)	(14.5854)					
	Equation 4: $R_p - R_f = a + b_1(R_m - R_f) + b_2 UNEXCH + b_3 UNCPI + b_4 UNINT + b_5 UNSPREAD + e$											
C+I	0.0056	0.5565		-1.1186	8.3785	-13.5525	-3.7120					
	0.0060	(0.1704)		(0.7577)	(9.0915)	(9.4742)	(14.4498)					
C	0.0018	0.7827		-0.8034	11.1547	18.6565	29.5319					
	0.0064	(0.1273)		(0.5554)	(6.9860)	(8.6960)	(12.9446)					
I	0.0057	0.8254		-1.9741	-0.8951	-11.9928	-2.8121					
	0.0108	(0.1658)		(0.8843)	(13.2272)	(12.0840)	(14.5868)					

Table 4 (Continued)

Portfolio	CONS	RPM	MV	RESEXCH	RESCPI	RESINT	RESSPREAD	EPS	PBV	PER	VOL	FREQ
	Equation 5: $R_p - R_f = a + b_1 EPS + b_2 PBV + b_3 PER + b_4 VOL + b_5 FREQ + e$											
C+I	-0.0214							-4.42E-06***	-0.0015	0.0003	4.59E-07	0.0007*
	0.0032							(8.56E-07)	(0.0011)	(0.0003)	(5.20E-07)	(0.0004)
C	-0.0170							-5.41E-06	-0.0009	0.0001	-6.75E-07	0.0004
	0.0038							(1.94E-06)	(0.0010)	(0.0003)	(4.54E-07)	(0.0004)
I	-0.0248							0.0001	-0.0036**	-0.0012***	0.0001***	0.0001
	0.0057							(0.0004)	(0.0017)	(0.0002)	(0.0000)	(0.0003)
	Equation 6: $R_p - R_f = a + b_1 MV + b_2 EPS + b_3 PBV + b_4 PER + b_5 VOL + b_6 FREQ + e$											
C+I	-0.0210		0.0162					-4.29E-06***	-0.0015	0.0003	-7.83E-06	0.0007*
	0.0033		(0.0159)					(8.80E-07)	(0.0011)	(0.0003)	(8.29E-06)	(0.0004)
C	-0.0232		0.3776***					-4.66E-06***	-0.0017**	0.0004*	-3.74E-07	0.0003
	0.0029		(0.1064)					(1.23E-06)	(0.0007)	(0.0002)	(3.33E-07)	(0.0003)
I	-0.0261		0.0021***					0.0003673	-0.0039**	-0.0013	0.0001***	0.0001
	0.0057		(0.0003)					(0.000373)	(0.0017)	(0.0002)	(0.0000)	(0.0003)
	Equation 7: $R_p - R_f = a + b_1(R_m - R_f) + b_2 MV + b_3 UNEXCH + b_4 UNCPI + b_5 UNINT + b_6 UNSPREAD + b_7 EPS + b_8 PBV + b_9 PER + b_{10} VOL + b_{11} FREQ + e$											
C+I	0.0042	0.5401***	0.0035	-1.0286	8.8333	-15.3664	-5.2528	-2.60E-06	-0.0005	-0.0001	-1.34E-06	0.0003
	0.0068	(0.1697)	(0.0178)	(0.7877)	(9.4809)	(10.0049)	(15.4304)	(1.60E-06)	(0.0010)	(0.0003)	(9.23E-06)	(0.0004)
C	-0.0086	0.5751***	0.3050***	-0.0074	12.7866**	9.2313	20.8525*	-2.29E-06*	-0.0010**	0.0002	-4.52E-07	0.0001
	0.0064	(0.1077)	(0.1006)	(0.5504)	(5.5623)	(7.8983)	(10.8106)	(1.26E-06)	(0.0005)	(0.0002)	(4.16E-07)	(0.0002)
I	-0.0049	0.7267***	0.0010**	-2.2880	-8.5392	-10.4579	-2.2420	0.0002	-0.0007	-0.0012***	0.00005***	0.0002
	0.0143	(0.1658)	(0.0004)	(0.9517)	(13.9199)	(13.6678)	(16.2625)	(0.0004)	(0.0019)	(0.0002)	(0.00002)	(0.0003)

Source: Proceed

Note: C = Conventional portfolio, I = Islamic portfolio, each assessment model uses 100 portfolios, the estimation employs variance covariance estimation (VCE) with significance level of 10% (*), 5% (**), dan 1% (***). RPM=risk premium market, MV=market capitalization, UNEXCH=unanticipated of exchange rate, UNCPI=unanticipated of inflation, UNINT=unanticipated of spread, EPS= Earnings per share, PBV=price to book value, PER=price to earnings ratio, VOL=volume of trading, FREQ=frequency of trading

Table 5. After Crisis

Portfolio	Equation 1: $R_p - R_f = a + b_1(R_m - R_f) + e$											
	CONS	RPM	MV	RESEXCH	RESCPI	RESINT	RESSPREAD	EPS	PBV	PER	VOL	FREQ
C+I	0.0030	0.6287										
	(0.0307)	(0.4241)										
C	0.0308	0.2678										
	(0.0279)	(0.3855)										
I	-0.0103	0.7700										
	(0.0260)	(0.3587)										
	Equation 2: $R_p - R_f = a + b_1(R_m - R_f) + b_2 MV + e$											
C+I	0.0031	0.6128	0.0042**									
	(0.0308)	(0.4263)	(0.0016)									
C	0.0134	0.2023	0.3170***									
	(0.0191)	(0.2573)	(0.0369)									
I	-0.0113	0.7617	0.0030									
	(0.0261)	(0.3598)	(0.0007)									
	Equation 3: $R_p - R_f = a + b_1 UNEXCH + b_2 UNCPI + b_3 UNINT + b_4 UNSPREAD + e$											
C+I	0.0692			0.8394	2.9966	-14.5183	-34.5950					
	(0.0393)			(1.8025	(10.5114)	(26.0950)	(21.0251)					
C	0.0792			1.0902	4.8870	9.4605	-5.8648					
	(0.0345)			(1.5863)	(8.1379)	(20.1761)	(18.9687)					
I	0.0541			-0.0896	8.3010	-19.3550	-0.9592					
	(0.0369)			(1.4235)	(11.4107)	(15.9181)	(20.8056)					
	Equation 4: $R_p - R_f = a + b_1(R_m - R_f) + b_2 UNEXCH + b_3 UNCPI + b_4 UNINT + b_5 UNSPREAD + e$											
C+I	-0.0671	1.0264*		-1.8497	-8.8670	15.4003	-34.4020*					
	(0.0845)	(0.5849)		(2.3945)	(10.9142)	(32.0912)	(20.2749)					
C	0.0213	0.4703		0.0357	0.3878	21.4383	-7.7325					
	(0.0827)	(0.6165)		(2.0755)	(9.9151	(26.0368)	(18.8345)					
I	-0.0982	1.2577		-2.8375	-2.3010	11.9890	5.8274					
	0.0856	(0.5978)		(2.0568)	(12.5525)	(24.1426)	(21.1806)					

Table 5 (Continued)

Portfolio	CONS	RPM	MV	RESEXCH	RESCPI	RESINT	RESSPREAD	EPS	PBV	PER	VOL	FREQ
	Equation 5: $R_p - R_f = a + b_1 EPS + b_2 PBV + b_3 PER + b_4 VOL + b_5 FREQ + e$											
C+I	0.0514							0.000013**	-0.0073	0.0009	6.36E-07*	-0.0003*
	0.0045							(6.05E-06)	(0.0060)	(0.0007)	(3.67E-07)	(0.0001)
C	0.0542							6.61E-06***	0.0009	0.0005***	-3.05E-07	-0.0003***
	0.0039							(1.39E-06)	(0.0046)	(0.0001)	(2.28E-07)	(0.0001)
I	0.0492							-0.0002	-0.0012	-0.0024	-0.0001	2.56E-06
	0.0050							(0.0005)	(0.0076)	(0.0013)	(0.0001)	(0.0001)
	Equation 6: $R_p - R_f = a + b_1 MV + b_2 EPS + b_3 PBV + b_4 PER + b_5 VOL + b_6 FREQ + e$											
C+I	0.0500		0.0176					0.0000124**	-0.0074	0.0009	-5.24E-06	-0.00025*
	0.0044		(0.0112)					(5.88E-06)	(0.0059)	(0.0007)	(4.38E-06)	(0.00014)
C	0.0297		0.3202***					1.32E-06	-0.0042	0.0004***	4.12E-09	-0.00020**
	0.0035		(0.0374)					(1.11E-06)	(0.0020)	(0.0001)	(1.77E-07)	(0.00009)
I	0.0473		0.0030					8.59E-06	-0.0018	-0.0024	-0.00006	0.00002
	0.0051		(0.0008)					(0.0004676)	(0.0077)	(0.0013)	(0.00011)	(0.00010)
	Equation 7: $R_p - R_f = a + b_1(R_m - R_f) + b_2 MV + b_3 UNEXCH + b_4 UNCPI + b_5 UNINT + b_6 UNSPREAD + b_7 EPS + b_8 PBV + b_9 PER + b_{10} VOL + b_{11} FREQ + e$											
C+I	-0.0729	1.0373*	0.0166	-2.2014	-9.4379	29.5334	-21.1117	0.000015**	-0.0072	0.0007	-4.82E-06	-0.0002
	(0.0862	(0.6174	(0.0111)	(2.3267)	(9.8259)	(30.0201)	(21.8750)	(6.68E-06)	(0.0060)	(0.0007)	(4.32E-06)	(0.0001)
C	0.0080	0.2898	0.3152***	-0.0657	-1.3441	7.1394	-7.4663	1.38E-06	-0.0041*	0.0003**	-2.95E-08	-0.0002**
	(0.0624)	(0.4323)	(0.0377)	(1.5109)	(8.4239)	(16.6938)	(14.7514)	(1.85E-06)	(0.0024)	(0.0001)	(2.12E-07)	(0.0001)
I	-0.1001	1.2463	0.0027	-2.5856	-8.5380	16.3990	5.5673	0.00007	-0.0015	-0.0023	-0.00007	0.0001
	(0.0917)	(0.5994)	(0.0012)	(2.3165)	(13.1696)	(26.8248)	(20.1265)	(0.00054)	(0.0072	0.0013	(0.00012)	(0.0001)

Source: Proceed

Note: C = Conventional portfolio, I = Islamic portfolio, each assessment model uses 100 portfolios, the estimation employs variance covariance estimation (VCE) with significance level of 10% (*), 5% (**), dan 1% (***). RPM=risk premium market, MV=market capitalization, UNEXCH=unanticipated of exchange rate, UNCPI=unanticipated of inflation, UNINT=unanticipated of spread, EPS= Earnings per share, PBV=price to book value, PER=price to earnings ratio, VOL=volume of trading, FREQ=frequency of trading

EPS consistently positivley influences the change in excess return of combined portfolio in all tests and excess return of conventional portfolio in some tests. PBV is negatively associated with the return of conventional portfolio, in Equation 6 and 7. Trading volume is significant factor to the return of mixed portfolio. In terms of liquidity, trading frequency shows negative impact on the change in excess return of mixed and conventional portfolios,in Equation 5 and 6.

5. Discussion

Risk and Return Analysis

In all regressions, market risk premium is the most consistent variable in positively contributing to the change in excess return of portfolio. This implies that the higher the market risk premium is, the higher excess return of portfolio the investor receives. Similarly, market capitalization always shows positive association with the portfolio excess return, inferring that the larger the market capitalization is, the higher the excess return. This finding is not consistent with result of previous studies revealing that small capitalization stocks gain higher returns. On the other side, this finding supports Indonesian Syariah Board's decision to rank syariah-compliant stocks based on market capitalization.

In the macroeconomic analysis, several indicators show significant contribution to the portfolio excess return,such as exchange rate and interest rate, particularly in the full-period and during-crisis period analysis. Unexpected factors, especially interest rate, inflation rate, and spread, pose consistent impact on Conventional stock portfolio return. Likewise, exchange rate and interest rate ate two important factors affecting excess return of Islamic portfolio.

In some extent, it seems Islamic stock portfolio is not consistently immune from impact of financial shock, as can be seen on the performance of Islamic portfolio in Equation 3 and 4, despite the fact that none of macroeconomic variables is significant factor to the change in excess return of Islamic portfolio.

What makes Islamic stocks or portfolios are not resistant to economic shock? It is worth noting that stock price reflects equilibrium set by the market, and market is responsive to the change in economic indicators. In this case, it is hard to intervene market mechanism. Rather, we may want to examine standards or criteria used to define whether a stock is syariah-compliant or not. One critique is addressed to the use of book value, instead of market value, in the criteria, as book value cannot capture the underlying volatility.

Tabel 6. Value at Risk

Excess Return of Portfolio	VaR Delta Normal
CI – Full Period	0.032
CI – Before Crisis	0.054
CI – During Crisis	0.042
CI – After Crisis	0.058
C – Full Period	0.040
C – Before Crisis	0.070
C – During Crisis	0.049
C – After Crisis	0.056
I – Full Period	0.046
I – Before Crisis	0.043
I – During Crisis	0.070
I – After Crisis	0.078

Source: Proceed

Table 6 reveals the results of Value at Risk (VaR) calculation on the basis of Delta Normal. Mixed portfolio (C+I) bears the lowest volatility, compared to that of conventional and Islamic portfolio in the full-period analyisis. In the before-crisis analysis, it is found that return of Islamic portfolio is more volatile than that of conventional portfolio, indicating that market value of Islamic portfolio bears high volatility. This finding is inline with our earlier suggestion that screening criteria cannot only rely on book values. Rather, the criteria set should also consider market value.

Portfolio Analysis

If a portfolio consists of combination of conventional stocks and Islamic stocks Islamic or merely conventional or Islamic stocks, then market risk premium and market capitalization need to be assessed carefully for investment decision.

6. Policy Implication and Conclusion

The above empirical results reveal that Islamic portfolio are weel connected with the movement of macroeconomic indicators, particularly exchange rate and inerest rate during a downturn. This is possible since the practice of Islamic finance has not been broadly accepted by the market. Capitalization of Islamic insurance, stocks, and other Islamic instruments in Indonesia is far below its counterpart in conventional instruments. This less efficient and fragile market is threrefore affected by economic shock in Indonesia. The high volatility of Islamic stock portfolio reflects the necessity for Indonesian Syariah Board to reconsider market value in its Syariah Compliance criteria. The existing criteria will not be able to minimize risk of Islamic stocks.

In terms of investment strategy, conventional portfolio tend to be influenced by spread movement and unanticipated inflation. While, Islamic portfolio is determined more by unanticipated exchange rate. During an economic slump, conventional portfolio is intevened more by EPS and PBV, while liquidity is the factor to Islamic portfolio return. In a moderate economic condition, retuns of conventional and Islamic portfolios are associated more with PBV, PER and trading frequency. Overall, it is recommended to include market capitalization and market risk premium in any portfolio formation, as this study finds consistent contribution from the two factors to protfolio return.

7. Limitation and Recommendations

This study has limitations, especially on the number of samples. Stock based on Islamic introduced since 2007 in Indonesia. Using the rolling period, this study only obtained 32 periods. Therefore, if we use a two-stage method as was done by Fama and Macbeth, Fama and French, Chen, Roll and Ross, then it can only be done for testing but not for the full period during and after the crisis due to the sample size. Future studies are strongly advised to do the two-stage method, i.e., time series regression and cross sectional regression

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Appendix

Table A. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis	Prob>chi2
Conventional + Islamic								
RPP	100	0.008	0.020	-0.053	0.047	0.074	0.415	0.138
RPM	100	0.021	0.007	0.001	0.036	0.064	0.467	0.131
UNEXC	100	-0.001	0.006	-0.009	0.022	0.000	0.000	0.000
UNCPI	100	-0.001	0.001	-0.004	0.000	0.000	0.000	0.000
UNINT	100	0.000	0.000	-0.001	0.000	0.259	0.734	0.492
UNSPREAD	100	0.000	0.000	0.000	0.001	0.000	0.008	0.000
REPS	100	-31.146	203.715	-1885.867	43.798	0.000	0.000	0.000
RPBV	100	0.391	1.907	-1.973	16.208	0.000	0.000	0.000
RPER	100	1.040	7.067	-30.083	53.510	0.000	0.000	0.000
RVOL	100	350.470	1282.846	0.252	8817.831	0.000	0.000	0.000
RFREQ	100	7.109	7.059	0.439	31.090	0.000	0.001	0.000
MV	100	0.264	0.692	-0.030	4.836	0.000	0.000	0.000
Conventional								
RPP	100	0.009	0.024	-0.046	0.100	0.022	0.031	0.013
RPM	100	0.021	0.011	-0.016	0.044	0.005	0.072	0.008
UNEXC	100	-0.001	0.006	-0.010	0.021	0.000	0.000	0.000
UNCPI	100	-0.001	0.001	-0.004	0.000	0.000	0.000	0.000
UNINT	100	0.000	0.000	-0.001	0.001	0.149	0.380	0.231
UNSPREAD	100	0.000	0.000	-0.001	0.001	0.440	0.006	0.023
REPS	100	-39.086	235.792	-1657.352	73.636	0.000	0.000	0.000
RPBV	100	0.436	3.790	-2.942	35.917	0.000	0.000	0.000
RPER	100	1.446	13.769	-57.464	118.040	0.000	0.000	0.000
RVOL	100	545.234	1945.990	0.087	12200.710	0.000	0.000	0.000
RFREQ	100	7.169	10.365	0.122	67.182	0.000	0.000	0.000
MV	100	0.099	0.536	-0.038	5.362	0.000	0.000	0.000

Descriptive Statistics (Continued)

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis	Prob>chi2
Islamic								
RPP	100	0.004	0.028	-0.111	0.070	0.006	0.008	0.012
RPM	100	0.015	0.011	-0.012	0.034	0.155	0.198	0.150
UNEXC	100	-0.001	0.003	-0.013	0.007	0.274	0.129	0.166
UNCPI	100	-0.001	0.000	-0.001	0.000	0.724	0.951	0.938
UNINT	100	0.000	0.000	-0.001	0.001	0.681	0.247	0.463
UNSPREAD	100	0.000	0.000	-0.001	0.000	0.842	0.343	0.620
REPS	100	1.174	4.950	-25.352	21.635	0.024	0.000	0.000
RPBV	100	0.252	0.934	-1.695	5.560	0.000	0.000	0.000
RPER	100	0.223	4.086	-24.654	26.880	0.650	0.000	0.000
RVOL	100	67.255	104.062	0.038	578.949	0.000	0.000	0.000
RFREQ	100	6.659	10.033	0.097	61.583	0.000	0.000	0.000
MV	100	0.489	1.958	-0.080	16.803	0.000	0.000	0.000