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Measurement of Stock Portfolio Performance Based on Risk Adjusted Return on Jakarta Islamic Index (JII) Stock

Komang Tri Wahyuni
Universitas Mahasaraswati Denpasar
Korespondensi penulis: triwahyuni@unmas.ac.id

Abstract: *Research of stock portfolio performance based on market to book value (PBV) and market capitalization are still a debate and pro kontra. The purpose of this research is to analyze the performance of stock portfolio based on PBV and market capitalization. The samples of this study Jakarta Islamic Indeks (JII) during periode 2020-2022. Total Observation of 60 was determined by purposive sampling method. Performance of stock portfolio based on PBV is devided by 2 format stock portfolios, namely: PBV high and PBV low. For market capitalization is devided by 2 format stock portfolio namely : big market capitalization and small market capitalization. All of them are measured by Risk Adjusted Return (index of Sharpe and Treynor). The result of these research is stock portfolio performance namely PBV low is outperform than PBV high, big market capitalization and small market capitalization which measured by index Sharpe and index Treynor during periode 2020 – 2022 at Jakarta Islamic Indeks (JII). The implication of this study suggests to perform of stock performance namely PBV low which havethe potential high earning growth because PBV less than one, means undervalued.*

Keyword: *Stock Portfolio, Price to bookvalue (PBV), Market Capitalization, Risk Adjusted Return, Index Sharpe, Index Treynor*

INTRODUCTION

The popular diversification principle in the capital market is "Don't put all your eggs in one basket" or "don't put all your eggs in one basket". The goal is for investors to spread risky assets. The concept of diversification in the capital market can mean forming a portfolio through selecting and combining a number of assets so that risk can be minimized without reducing expected returns (Tandelilin; 2010).

Diversification, which is more efficient than random diversification, was carried out by Markowitz (1952) who carried out diversification by forming a portfolio based on covariance considerations and negative correlation coefficients between assets in order to reduce portfolio risk based on asset characteristics and the industrial classification of an asset. (Tandelilin; 2010).

Portfolio formation using company value ratios (valuation) is often found in various empirical studies. PBV (Price to book value) is one way of looking at stock performance by comparing the stock price to its book value (BV). The use of PBV is to see how the market values a company (valuation) relative to the amount of capital (equity) of that company. The greater the PBV of a share, the more expensive the company's shares are and vice versa (Ang; 1997).

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* Komang Tri Wahyuni, triwahyuni@unmas.ac.id

The formation of a stock portfolio based on PBV reaps the pros and cons, starting with Graham (1997) in his book "Intelligent Investing" suggesting to carry out a high diversification strategy at a high PBV ratio value, if the market price of the company's shares has been reflected, otherwise carrying out low diversification, at shares with a low PBV ratio (undervalue). Fisher in Glen Arnold (2013), also suggests forming a small stock portfolio of the best stocks, namely stocks with low PBV which have the potential for high earnings growth, because the PBV ratio value is less than 1, it can be said that the stock price is still cheap and so is on the contrary.
Debates about portfolio formation based on company size are often found in empirical studies. Starting with Banz, (1981), who found that small market capitalization stock returns (small caps) outperformed those of large market capitalization (big caps). The same findings were also explained in the empirical studies of Reinganum (1981), Jensen et al. (1997) Bauman et al. (1998) Arshanapalli et al., (1998) and Ding et al. (2005), who found that company size has a negative relationship with returns, where the results of this research also found that returns on small caps outperform large capitalization stocks. (big caps), this finding is biased due to the small frequency of trading in small market capitalization stocks (Reinganum; 1981). Stock price movements based on market capitalization can be seen during bearish market conditions (downtrend), because generally large market capitalization stocks move down first compared to mid caps and small caps, likewise when the index reverses direction, large capitalization stocks do too. which first rises more quickly (recovers) if the market shows bullish conditions. (Tryfino; 2009). Different findings on the IDX show that medium capitalization stock portfolios outperform large and small capitalization (Wahyuni; 2019)

Indeks saham syariah merupakan ukuran statistik yang mencerminkan pergerakan harga sekumpulan saham syariah yang diseleksi berdasarkan kriteria tertentu. Adapun penyeleksian saham syariah dilakukan oleh Otoritas Jasa Keuangan (OJK) dengan menerbitkan Daftar Efek Syariah (DES), artinya BEI tidak melakukan seleksi saham Syariah, Melaikan menggunakan DES Sebagai acuan untuk pemilihanya. Tujuan dari indeks saham syariah adalah untuk memudahkan investor dalam mencari acuan dalam berinvestasi syariah di pasar modal.

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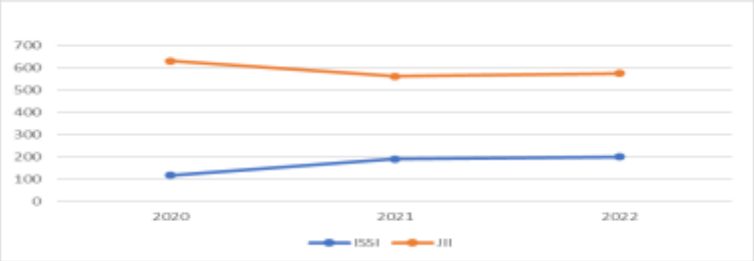

Figure 1 Development Of The Issi And Jii Index
Source : www.ojk.go.id

Based on Figure 1.1, if you look at the JII index in 2020, it is better than in 2021, because in 2021 it experienced a decline of 10.85%. Meanwhile, the Indonesian sharia stock index in 2021 increased by 6.50%. In 2022, the JII and ISSI indices will increase by 2.23% and 6.02% respectively, if you look at sharia stocks, they are stable every year. And JII and ISSI sharia shares are not affected by the Covid-19 pandemic.

Based on previous findings and research, it is interesting to further analyze stock performance measurements using risk adjusted returns on Jakarta Islamic Index shares during the 2020-2022 period. In this research, the stock portfolio formed is different from previous research, namely using a classification based on the Fama and French (1995) approach with the PBV and market capitalization division technique, namely by adding up the total PBV value of all JII shares, then looking for the middle value (median) , after getting the mean PBV value, it is then grouped into two portfolio formations, namely high PBV stock portfolios (high) and

low PBV (low). Formations with market capitalization are grouped into 2, namely large market capitalization and small market capitalization.

Measuring the performance of the portfolio formation above will then use risk adjusted return (Sharpe and Treynor index). The concept of measuring portfolio performance is based on risk adjusted return, based on a combination of return and risk (risk-adjusted return). The objectives of the two indexes are actually not much different. While the Sharpe Index measures portfolio performance with total risk as an indicator, the Treynor Index measures portfolio performance with systematic risk (beta) as an indicator. (Tandelilin; 2010).

Research purposes

a) To determine the performance of stock portfolios based on high PBV and low PBV using risk adjusted return measurements on Jakarta Islamic Index shares during the 2020-2022 period.
b) To determine the performance of stock portfolios based on large market capitalization and small market capitalization using risk adjusted return measurements on Jakarta Islamic Index shares during the 2020-2022 period.

THEORETICAL STUDY

Share

Shares are proof of participation in the assets of the company issuing shares. If you own shares in a company, the investor will have the right to the company's income and assets, after deducting payments for the company's obligations. Shares can be divided into preferred shares and ordinary shares. Preferred shares are shares that have a combination of characteristics of bonds and ordinary shares, because preferred shares provide fixed income like bonds and also get ownership like ordinary shares.

Ordinary shares are securities that show that the holder of ordinary shares has ownership rights to company assets. Ordinary shareholders have voting rights to elect directors or company management and take part in making important company decisions at the General Meeting of Shareholders (GMS). The price of ordinary shares that occurs in the market will be very meaningful for the company because this price determines the value of the company. The company's market value can be calculated from multiplying the share price by the number of shares outstanding.

Stock Returns

Tandelilin (2010) returns are one of the factors that motivate investors to invest and are also a reward for the investor's courage to bear the risks of the investment they make. Investors

can calculate stock returns, namely by calculating the share price in the current year minus the share price in the previous year and dividing by the share price in the previous period.

If the results of the stock return calculation are positive, it means that the investment made was profitable or can be said to have earned capital gains. And conversely, if the results of the stock return calculation are negative, it means that the investment made suffered a loss or suffered a capital loss. The higher the stock return, the better the investment made because it can generate profits, conversely, the lower the stock return or even negative, the worse the investment results.

$$\textit{Return}\ \text{Saham} = \frac{P_t - P_{t-1}}{P_{t-1}} \quad \text{......(2.1)}$$

P_t : harga saham pada periode sekarang

P_{t-1} : harga saham pada periode sebelumnya

Portofolio

The definition of portfolio is that investment activities in the capital market basically aim to obtain returns, but investors must also bear the risks of the investments they make. Investors can diversify through portfolio formation to minimize unsystematic risk (Jogiyanto; 2000).

***Return* Portofolio**

Portfolio return is the weighted average of the realized returns for each single security in the portfolio (Jogiyanto; 2000). Portfolio realization returns can be found using the following formula:

$$Rp = \sum_{i=1}^{N} (w_i\, R_i) \quad \text{......(2.2)}$$

Keterangan :

Rp = *return* realisasi portofolio

w_i = porsi dari sekuritas i terhadap seluruh sekuritas di portofolio

Ri = *return* realisasi dari sekuritas i

n = jumlah dari sekuritas tunggal

Risiko Portofolio

a) Systematic risk is the part of security risk that cannot be eliminated by forming a portfolio or diversifying. This systematic risk is owned or inherent in all companies, because it is caused by macroeconomic factors, for example inflation and interest rates. The systematic risk of a stock is an indicator that shows the sensitivity of the movement of stock returns to the movement of returns of other shares in the market. The existence of a link between

individual shares and the market brings the idea that the amount of systematic risk of a share should be estimated from the company's fundamental aspects and market characteristics. If these are fundamental financial aspects, it will really help investors in analyzing the sensitivity of stock return movements to stock movements. Fundamental financial factors are accounting data in the form of ratios that can help investors predict stock risk. The parameter used to measure risk is beta (β).

b) Beta is a measure of the volatility of a security's return or portfolio return relative to market returns. The beta of the Ith security measures the volatility of the return of the Ith security with market returns. Market risk (β) is measured using a regression test between stock portfolio returns and market returns.

c) Unsystematic risk is a risk that can be eliminated by diversifying, because this risk only exists in one particular company or industry. The magnitude of these risk fluctuations varies from one stock to another. This difference means that each stock has a different level of sensitivity to any market changes. For example, capital structure factors, asset structure, liquidity level, profit level and so on. This risk is also called diversifiable risk. The parameter used to measure risk is standard deviation (σ).

d) The standard deviation of a stock portfolio is a measure of the volatility of a security's return or portfolio return on the number of shares. Portfolio risk measurement (σ) To calculate risk, standard deviation is used which measures the deviation of values that have occurred with the expected value. The standard deviation is expressed with the symbol (σ) and when expressed in square form it is called the variance, so the formula used to calculate the standard deviation or risk is as follows:

$$\sigma^2 i = \sum_{j=1}^{N} \frac{\left[(R_{ij} - E(R_i)\right]^2}{N} \qquad \sigma = \sqrt{\sigma^2 i} \quad \text{.....(2.3)}$$

(Sumber : Suad Husnan; 1998)

Information :

σ^2i = varians saham i

σi = deviasi standar = risiko

E(Ri) = tingkat keuntungan yang diharapkan dari saham i

Return Pasar

Market return is the rate of return obtained from investing in shares on the stock exchange, which is reflected in the Composite Stock Price Index (IHSG). The Composite Stock Price Index (IHSG) was first introduced on April 1 1983 as an indicator of stock price movements listed on the Stock Exchange. The Composite Stock Price Index (IHSG) uses all

shares listed on the stock exchange as components for calculating the index. Market risk is indicated by market standard deviation (the root of market variance) which shows the market deviation from the average deviation of market stock returns in a certain period.

Market returns can be calculated using the following formula:

$$R_{mt} = \frac{I_t - I_{t-1}}{I_{t-1}} \quad \text{.....(2.4)}$$

(Tandelilin ; 2010)

Keterangan :

R_{mt} = *return* pasar periode ke-t

I_t = Indeks Harga Saham Gabungan (IHSG) periode ke- t

I_{t-1} = Indeks Harga Saham Gabungan (IHSG) periode ke- t-1

Risk Free Return

Risk-free return is the rate of return obtained from risk-free assets. One of the investments in risk-free assets is investment in Bank Indonesia Certificates (SBI), namely securities bearing bears in rupiah issued by Bank Indonesia as recognition of short-term debt. The return on investment returns on Bank Indonesia Certificates is guaranteed by the state/government so it is said to be a form of risk-free investment. The risk-free return can be in the form of the Bank Indonesia Certificate (SBI) interest rate.

$$RBR = \frac{I_t - I_{t-1}}{I_{t-1}} \quad \text{.....(2.5)}$$

(Tandelilin ; 2010)

Information :

R_{BR} = *return* bebas risiko periode ke-t

I_t = Interest (BI Rate) periode ke- t

I_{t-1} = Interest (BI Rate) periode ke- t-1

***Valuation Ratio* (PBV)**

Brigham and Houston (2010:111) write that valuation is the difference between the company's market value and the book value of equity. Valuation is a cumulative measure of financial performance that shows how much value was added to the capital invested by investors during the company's existence. Sukamulja (2019:105) said that price to book value (PBV) is an important ratio in calculating the value of a company. This ratio shows whether the traded share price is higher or lower than the share book value.

According to Sartono (2010), PBV is a market ratio used to measure the performance of stock market prices relative to their book value. This ratio is calculated by comparing the market price of shares with the book value per share. Book value is the value of a company's most important assets listed in an annual financial report and is calculated by subtracting the

company's liabilities from its assets. Saraswati (2020), the higher the PBV shows the more successful the company is in creating value for shareholders. The higher the company value, the more interested investors are in investing. Share prices rise and stock returns will also rise. Price to book value (PBV) can be calculated using the formula:

$$PBV = \frac{Harga\ Saham}{Nilai\ Buku\ Ekuitas} \text{.....(2.6)}$$

PBV = Price to Book Value

Harga Saham = Harga saham akhir tahun per lembar

Nilai buku Equitas = Jumlah Ekuitas dibagi per saham

Market Capitalization

Market capitalization is a value that describes the result of the total closing price and the total shares of the company that have been published. The market capitalization value can be calculated by multiplying the closing share price by the total shares issued (Niawaradila et al., 2021).

According to Ang (1997), shares traded on the Indonesian Stock Exchange can be divided into 2 groups based on capitalization, namely:

1. Large Market Capitalization (Big Capitalization), are shares whose market capitalization value is greater than or equal to Rp. 5 trillion. This type of stock is often known as Blue Chip shares or first tier shares. Investors generally like shares in this group, because shares in this category usually have good fundamentals.
2. Small Market Capitalization (Small Capitalization), referred to as third tier shares, namely shares that have a market capitalization value below Rp. 1 trillion. Shares in this group have a high Return on Investment (ROI), because the price is relatively cheap, but these shares have high risks.

In general, shares that have a large capitalization value are a target for investors to make long-term investments because shares that have a large market capitalization have positive potential in terms of company growth in addition to dividend distribution and relatively low risk exposure (Yusra, 2019). Because many investors are interested, share prices will generally increase along with high investor interest, this will also provide relatively high returns. Market capitalization can be calculated using the formula:

$$Vs = P_s \ X \ S_s \text{.....(2.7)}$$

Keterangan

Vs = kapitalisasi pasar

P_s = *market price* (harga pasar)

S_s = jumlah saham yang diterbitkan

Portfolio Performance Measurement and Evaluation

Measuring and evaluating portfolio performance is an important stage in the investment decision process which is used to determine whether the performance of the portfolio formed has met the investment objectives that investors want to achieve. This portfolio performance measurement and evaluation stage includes measuring portfolio performance and comparing the results of these measurements with the performance of other portfolios through a benchmarking process.

Tandelilin (2001) states that several portfolio performance measures that include risk factors (risk-adjusted performance) are the Sharpe index, Treynor index, and Jensen index. This concept is based on a combination of return and risk (risk-adjusted return). Sharpe (1966) measured portfolio performance with total risk as an indicator, while Treynor (1965) measured portfolio performance with systematic risk (beta) as an indicator. Theoretically, the risk-adjusted return measure makes it possible to directly compare portfolios with different levels of risk and return. Each of these indices will be explained as follows:

1) Sharpe Index

The Sharpe index was developed by William Sharpe and is often called the reward-to-variability ratio. The Sharpe Index bases its calculations on the concept of the capital market line as a benchmark. This is done by dividing the portfolio risk premium by its standard deviation, so that the Sharpe index can be used to measure the risk premium for each unit of portfolio risk. The Sharpe Index can be used to rank several portfolios based on their performance. The higher the Sharpe index of a portfolio compared to other portfolios, the better the portfolio's performance. The portfolio Sharpe Index can be calculated using the following formula :

$$\hat{S}_P = \frac{\overline{R}_P - \overline{R}_F}{\sigma_p}$$

di mana:

$\hat{S}_P$ = Indeks Sharpe portofolio

$\overline{R}_P$ = rata-rata *return* portofolio selama periode observasi

$\overline{R}_F$ = rata-rata tingkat *return* bebas risiko selama periode observasi

σ_p = standar deviasi *return* portofolio selama periode observasi

2) Indeks Treynor

The Treynor Index is a portfolio performance measure developed by Jack Treynor. The Treynor index looks at portfolio performance by relating the level of portfolio return to the

amount of risk of the portfolio, as is the case with the Sharpe index. The difference with the Sharpe index is the use of the security market line as a benchmark in calculating the Treynor index. In the Treynor index, the risk that is considered relevant is systematic risk (measured by portfolio beta) because the Treynor index assumes that the portfolio formed is well diversified. The higher the Treynor index measurement value of a portfolio compared to other portfolios, the better the portfolio's performance. The portfolio Treynor Index can be calculated using the following formula:

$$\hat{T}_P = \frac{\overline{R}_P - \overline{R}_F}{\hat{\beta}_P}$$

di mana:

$\hat{T}_P$ = IndeksTreynor portofolio

$\overline{R}_P$ = rata-rata *return* portofolio selama periode observasi

$\overline{RF}$ = rata-rata tingkat *return* bebas risiko selama periode observasi

$\hat{\beta}_P$ = beta portofolio

Performance measurement using the Sharpe index and Treynor index is complementary, because it provides different information. The choice of which index to use depends on the investor's perception of the level of diversification of the portfolio. In the Sharpe index the risk that is considered relevant is total risk (the sum of systematic risk and unsystematic risk), whereas in the Treynor index only systematic risk (beta) is used. If a portfolio is considered to be well diversified, it means that the portfolio's returns are almost entirely influenced by market returns. When forming a portfolio using market returns, it is best to measure it using the Treynor index approach. Conversely, if the return of a portfolio is only a small part influenced by market returns, it is more appropriate to use the Sharpe index.

RESEARCH METHODOLOGY

This research design was designed as explanatory research, namely explaining how the stock portfolio performs based on PBV (valuation) and market capitalization of shares in the Jakarta Islamic Index using risk adjusted returns. This research uses quantitative data to further assess the performance of stock portfolios named high PBV and low PBV, as well as the performance of large capitalization and small capitalization portfolios.

Data Types and Sources

This research uses secondary data on shares of companies listed on the Jakarta Islamic Index (JII) during the 2020-2022 period, the data sources consist of:

1) share price, used to calculate stock returns and market capitalization
2) the interest rate on Bank Indonesia Certificates (SBI), used to calculate risk-free returns
3) Composite Stock Price Index (IHSG), used to calculate market returns.
4) the number of shares circulating in the public, which is used to calculate market capitalization
5) The Financial Position Report (Balance Sheet) is used to find the amount of equity, in order to obtain price to book value (PBV)

Population and Sampling Techniques

The population in this study is that there are 30 shares of companies registered in Jakarta. The Islamic index is depicted in the table as follows:

Table 1 List of Pharmaceutical Companies on the Indonesian Stock Exchange (BEI)

No	Kode	Perusahaan
1	ACES	Ace Hardware Indonesia Tbk.
2	ADRO	Adaro Energy Indonesia Tbk.
3	AKRA	AKR Corporindo Tbk.
4	ANTM	Aneka Tambang Tbk.
5	BRIS	Bank Syariah Indonesia Tbk.
6	BRMS	Bumi Resources Minerals Tbk.
7	BRPT	Barito Pacific Tbk.
8	CPIN	Charoen Pokphand Indonesia Tbk
9	EXCL	XL Axiata Tbk.
10	HEAL	Medikaloka Hermina Tbk.
11	HRUM	Harum Energy Tbk.
12	ICBP	Indofood CBP Sukses Makmur Tbk.
13	INCO	Vale Indonesia Tbk.
14	INDF	Indofood Sukses Makmur Tbk.
15	INKP	Indah Kiat Pulp & Paper Tbk.
16	INTP	Indocement Tunggal Prakarsa Tbk.
17	ITMG	Indo Tambangraya Megah Tbk.
18	KLBF	Kalbe Farma Tbk.
19	MIKA	Mitra Keluarga Karyasehat Tbk.
20	MTEL	Dayamitra Telekomunikasi Tbk.
21	PGAS	Perusahaan Gas Negara Tbk.
22	PTBA	Bukit Asam Tbk.
23	SCMA	Surya Citra Media Tbk.
24	SIDO	Industri Jamu dan Farmasi Sido Muncul Tbk.
25	SMGR	Semen Indonesia (Persero) Tbk.
26	TINS	Timah Tbk.
27	TLKM	Telkom Indonesia (Persero) Tbk.
28	TPIA	Chandra Asri Petrochemical Tbk.
29	UNTR	United Tractors Tbk.
30	UNVR	Unilever Indonesia Tbk.

Source: *idx.co.id, 2023*

The sampling technique uses purposive sampling technique with the following criteria:

a) Companies listed on the Jakarta Islamic Index consecutively on the Indonesia Stock Exchange for the 2020-2022 period.
b) Companies registered in the Jakarta Islamic Index that publish consecutive and complete annual financial reports for the 2020-2022 period.
c) Companies registered in the Jakarta Islamic Index which when reporting annual financial reports use the rupiah currency for the 2020-2022 period.

The results of sample selection based on the criteria above are 20 shares of companies listed on the Jakarta Islamic index that publish complete financial reports in rupiah currency units. Nine (9) shares of ADRO (Adaro Energy Indonesia Tbk), BRMS (Bumi Resources Menerals Tbk), BRPT (Barito Pacific Tbk), HRUM (Harum Energy Tbk), INCO (Vale Indonesia Tbk), INKP (Indah Kiat Pulp & paper Tbk), ITMG (Indo Tambangraya Megah Tbk), PGAS (Perusahaan Gas Negara Tbk), TPIA (Chandra Asri Petrochemical Tbk) which do not publish financial reports in rupiah. One (1) MTEL (Dayamitra Telekomunikasi Tbk.) share is not listed on the Indonesian Stock Exchange 2020 -2022, because this share was only listed in 2021.

Data analysis technique:

This quantitative analysis technique is used to measure stock portfolio performance with the following stages:

a) Form a portfolio based on valuation (PBV) which is called a high (High) and low (Low) PBV stock portfolio
b) Forming a portfolio based on market capitalization is called a large (Big) and small (Small) market capitalization stock portfolio
c) Look for stock portfolio returns from the High, Low, Big, Small portfolio
d) Using a formula to calculate stock portfolio risk, namely standard deviation and using regression between portfolio returns and market returns to find stock beta
e) Measuring performance with risk adjusted return: Sharpe and Treynor index
f) Analyze and evaluate the performance of the portfolio by looking at the superiority (outperformance) of the results of the Sharpe and Trenor index values

RESEARCH RESULTS AND DISCUSSION

Stock Portfolio Performance Analysis Based on Valuation (PBV)

Analysis of the performance of the Valuation stock portfolio (PBV), consisting of High PBV and Low PBV stock portfolios on JII shares during the 2020-2022 period is listed in Table 2 and Table 3 below

Tabel 2 High PBV Stock Portfolio Performance Calculation Results at JII Periode 2020-2022

KINERJA INDEK SHARPE DAN TREYNOR
PORTOFOLIO SAHAM PBV TINGGI JII
PERIODE : TAHUN 2020-2022

NO	Periode	Return Portofolio (%)	Return Pasar (%)	Standard Deviasi	Beta saham	Return Bebas Risiko (RBR) (%)	Indeks Sharpe	Indeks Treynor
1	2020	22.005	-1.83	3.061	-0.408	4.35	5.768	-43.272
2	2021	-11.660	10.075	1.502	-0.408	3.52	-10.105	37.206
3	2022	2.095	4.336	0.345	-0.408	5.81	-10.780	9.105
Σ Rp HIGH		12.440	12.581	4.908	-1.224	13.680	-15.117	3.039
Rata -rata Rp HIGH		4.147	4.194	1.636	-0.408	4.560	-5.039	1.013

Source : data olahan, 2023

Based on table 2, it can be seen that the average performance of the Sharpe Index for the high PBV stock portfolio on Jakarta Islamic Index shares is 5.039%/year, lower than the risk-free return (RBR) which is 4.560%/per year and the market return (RM), namely 4.194%/year. Likewise, the Treynor index's annual performance is lower than RBR and RM.

If you look at the Portfolio Return (Rp) in 2021 and 2022, the Sharpe index value is almost the same, namely 10, although the portfolio returns in the two years are significantly different, this is due to the standard deviation and RBR experiencing significant changes in 2021-2022. The increase in interest rates due to the improving economy triggered the RBR to rise by almost 100%, which made the Sharpe Index in 2022 minus even though Rp was positive.

The average performance of the Treynor Index for the PBV stock portfolio is high, namely 1.013%/year, lower than the risk-free return (RBR), namely 4.560%/per year and market return (RM), namely 4.194%/year.

If you look at the Portfolio Return (Rp) in 2020, it actually has the highest Rp, but the Treynor index value looks the lowest, this is because the stock beta against market risk has a negative value, which means the JII stock portfolio return is opposite to the market return (IHSG).

Tabel 3 Hasil Perhitungan Kinerja Portofolio Saham PBV Rendah di JII Periode 2020-2022

KINERJA INDEK SHARPE DAN TREYNOR PORTOFOLIO SAHAM PBV RENDAH JII PERIODE : TAHUN 2020-2022								
NO	Periode	Return Portofolio (%)	Return Pasar (%)	Standard Deviasi	Beta saham	Return Bebas Risiko (RBR) (%)	Indeks Sharpe	Indeks Treynor
1	2020	105.130	-1.83	3.492	0.017	4.35	28.864	5928.235
2	2021	-0.150	10.075	1.653	0.017	3.52	-2.221	-215.882
3	2022	-7.250	4.336	0.442	0.017	5.81	-29.538	-768.235
Σ Rp LOW		97.730	12.581	5.586	0.051	13.680	-2.895	4944.118
Rata -rata Rp LOW		32.577	4.194	1.862	0.017	4.560	-0.965	1648.039

Source : data olahan, 2023

Based on table 3, it can be seen that the average performance of the Sharpe Index for the low PBV stock portfolio on Jakarta Islamic Index shares is negative, namely -0.965%/year, lower than the risk-free return (RBR) which is 4.560%/per year and return market (RM), namely 4.194%/year. If you look at the Portfolio Return (Rp) in 2020, it is 105% compared to 2021 and 2022.

The average performance of the Treynor Index for the low PBV stock portfolio has fantastic performance, namely 1648%, far exceeding the risk-free return (RBR), namely 4.560%/per year and the market return (RM), namely 4.194%/year.

If you look at the Portfolio Return (Rp) in 2020, it actually has the highest Rp, with a low positive beta, which means that the return of the JII stock portfolio has very little influence

on the market return (IHSG) or the shares in JII do not have much influence on the movement of the IHSG .

Stock Portfolio Performance Analysis Based on Market Capitalization

Analysis of the performance of market capitalization stock portfolios, consisting of large market capitalization stock portfolios (big) and small market capitalization (small) in JII shares during the 2020-2022 period is listed in Table 4 and Table 5 below:

Table 4 Calculation Results of Large Market Capitalization Stock Portfolio Performance at JII Periode 2020-2022

KINERJA INDEK SHARPE DAN TREYNOR
PORTOFOLIO KAPITALISASI PASAR BESAR JII
PERIODE : TAHUN 2020-2022

NO	Periode	Return Portofolio (%)	Return Pasar (%)	Standard Deviasi	Beta saham	Return Bebas Risiko (RBR) (%)	Indeks Sharpe	Indeks Treynor
1	2020	97.740	-1.83	12.821	-1.651	4.35	7.284	-56.566
2	2021	-2.185	10.075	0.310	-1.651	3.52	-18.387	3.455
3	2022	3.790	4.336	0.503	-1.651	5.81	-4.017	1.224
Σ Rp BESAR		99.345	12.581	13.635	-4.953	13.680	-15.120	-51.887
Rata -rata Rp BESA		33.115	4.194	4.545	-1.651	4.560	-5.040	-17.296

Source : data olahan, 2023

Tabel 5 Hasil Perhitungan Kinerja Portofolio Saham Kapitalisasi Pasar Kecil di JII Periode 2020-2022

KINERJA INDEK SHARPE DAN TREYNOR
PORTOFOLIO KAPITALISASI PASAR KECIL
PERIODE : TAHUN 2020-2022

NO	Periode	Return Portofolio (%)	Return Pasar (%)	Standard Deviasi	Beta saham	Return Bebas Risiko (RBR) (%)	Indeks Sharpe	Indeks Treynor
1	2020	22.465	-1.83	13.573	4.777	4.35	1.335	3.792
2	2021	-9.625	10.075	0.303	4.777	3.52	-43.398	-2.752
3	2022	-8.760	4.336	0.703	4.777	5.81	-20.728	-3.050
Σ Rp KECIL		4.080	12.581	14.578	14.331	13.680	-62.792	-2.010
Rata -rata Rp KECIL		1.360	4.194	4.859	4.777	4.560	-20.931	-0.670

Source : data olahan, 2023

Based on tables 4 and 5, it can be seen that the average performance of the Sharpe Index for stock portfolios based on market capitalization on Jakarta Islamic Index shares is negative, namely large capitalization (big) -5.040%/year and small capitalization -20.931%/year, this figure is far lower than risk-free return (RBR), namely 4.560%/per year and market return (RM), namely 4.194%/year.

The average performance of the Treynor Index for stock portfolios based on market capitalization also has negative performance, namely -17.296 for big and -0.670% for small, much lower than the risk-free return (RBR) which is 4.560%/per year and the market return (RM) , namely 4.194%/year.

If you look at the Portfolio Return (Rp) in 2020, it actually has the highest Rp. However, the stock beta relative to market risk has a negative value, which means that the JII stock portfolio return is opposite to the market return (IHSG). Even though the portfolio return is

high, if the beta is negative, the portfolio performance will also underperform, this is because the increase is not followed by an increase in the IHSG (market) so that the portfolio return is vulnerable to correction.

A stock beta above 1 has a very high risk, which can be seen in a small market capitalization stock portfolio, with a beta value of 4.777, meaning that if there is a decline in share prices, the portfolio will be corrected 4x the market return (RM).

Explanation of Results

The findings of this research found that the performance of stock portfolios based on PBV and market capitalization in companies listed on the Jakarta Islamic index during the 2020 - 2022 period as measured by Risk Adjusted Return can be seen in Table 6 which is the result of recapitulation of Stock Portfolio Performance on JII which measured by the Sharpe and Treynor Index.

Table 6 Recapitulation of Sharpe and Treynor Index Performance of Stock Portfolio Based on PBV and Market Capitalization in JII for the 2020-2021 Period.

KINERJA INDEK SHARPE DAN TREYNOR PORTOFOLIO SAHAM BERDASARKAN PBV DAN KAPITALISASI PASAR DI JII PERIODE : TAHUN 2020-2022			
PORTOFOLIO	INDEKS SHARPE	INDEKS TREYNOR	RANK
PBV TINGGI	(5.039)	1.013	2
PBV RENDAH	(0.965)	1,648.039	1
KAP. BESAR	(5.040)	(17.296)	4
KAP. KECIL	(20.931)	(0.670)	3

Source : data olahan, 2023

Based on table 6, it can be seen that the performance of stock portfolios named low PBV is superior (outperform) compared to high PBV, large and small market capitalization.

Research Findings

1. This research finds that forming a stock portfolio using low valuation (PBV) is able to produce superior performance. This research agrees with Fisher in Glen Arnold (2013), also suggesting forming a small stock portfolio (diversification) of only the best stocks. , namely shares with low PBV which have the potential to have high earnings growth, because the PBV ratio value is less than 1, it can be said that the share price is still cheap (undervalued).
2. The findings of this research differ from Tryfino (2009) and Wahyuni (2019) in that the formation of a large market capitalization portfolio in JII shares underperforms compared to a portfolio of small capitalization shares. This research also agrees with the initial findings of Banz and Reinganum (1981), namely shares small caps outperform.

3. It was found that forming a stock portfolio by classifying JII shares into 2 upper and lower parts can make it easier to determine the performance of a portfolio so that capital market players can make the right decisions
4. The high risk high return theory in this research is inconsistent, considering that in the low PBV stock portfolio the Jakarta Islamic Index (JII) shares have the lowest beta value (stock risk to the market) of 0.017, but have the best (highest) performance and return. So here it's low risk, high return.
5. Forming a stock portfolio based on valuation (PBV) has better performance than a stock portfolio based on market capitalization on Jakarta Islamic Index (JII) shares and measurement using risk adjusted return is better because it combines return and risk, both portfolio risk (standard deviation) and market risk (stock beta).

CONCLUSION

Based on the discussion described in the previous chapter, conclusions were obtained in this research

1. That the performance of stock portfolios is measured using the Sharpe and Treynor indexes on stocks listed on the Jakarta Islamic Index during the 2020-2022 period, finding that the performance of stock portfolios called low PBV outperforms compared to the performance of high PBV stocks, large market capitalization and small market capitalization
2. Formation of a stock portfolio based on valuation (PBV) is able to provide better performance than based on market capitalization (size) on Jakarta Islamic Index (JII) shares
3. Measurement using risk adjusted return is better because it provides consistent results and this measurement combines return and risk, both portfolio risk (standard deviation) and market risk (share beta).
4. The latest in this research is: a) forming a stock portfolio based on PBV by classifying it into high and low PBV b) using market capitalization by classifying it into large and small market capitalization, c) using the research location, namely the Jakarta Islamic Index (JII)

Implications and Suggestions

1. The implication of this research is that capital market players should prefer to form stock portfolios based on fundamental aspects of the company (valuation).
2. Suggestions for further research, it is hoped that researchers can combine stock portfolios with formats such as: high PBV with a large capitalization market, low PBV with a large capitalization market, high PBV with a small capitalization market and low PBV with a

small capitalization market in order to find the best portfolio and more accurate in making future investment decisions

3. It is hoped that this research can add a longer research period so as to reduce bias in future research results.

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