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THE APPLICATION OF DIVIDEND YIELD-BASED INVESTMENT STRATEGYIN THE INDONESIA STOCK EXCHANGE (CASE STUDY OF IDX HIGH DIVIDEND 20 FOR THE PERIOD 2018-2022)

APLIKASI INVESTASI BERDASARKAN TINGKAT IMBAL HASIL SAHAM DALAM INDONESIA STOCK EXCHANGE (STUDI KASUS: IDX HIGH DEVIDEN 20 SELAMA TAHUN 2018-2022)

Muhammad Rizky Amin[1], Subiakto Soekarno[2]
Institut Teknologi Bandung[1,2]
mrizky_amin@sbm-itb.ac.id[1]

ABSTRACT

The growth of the stock market in Indonesia has been rapid, in 2022 total of 10.3 million investors counted. To maximize their portfolios, investors seek simple and applicable investment strategies. One such strategy, based on dividend yield, is gaining popularity in the United States but remains underutilized in Indonesia. The Research aims to analyze the application of dividend yield-based investment strategies on the Indonesian stock exchange, particularly in the IDX High Dividend 20 stock index, to determine if it can produce results similar to the Dow Jones stock index. Historical data from 2018 to 2022 on IDX High Dividend 20 stocks, including closing prices at the end of the year and annual dividends, were used to calculate dividend yield and form a portfolio consisting of the top 10 stocks with the highest yield. This approach is called The Dogs of the Dow, where in this research, the other variants of the Dog of the Dows such as Dog of the Dows X (Dow 7), Top Low 5 (Dow 5), Top Low 4 (Dow 4), and Fund allocation 4 (Foolish 4) were utilized. Results show that dividend yield-based investment strategies are simple to apply and can provide high performance, making them a profitable option for investors.

Keywords: *Indonesian stock exchange, dividend yield, IDX high dividend 20, The Dogs of the Dow, and investment strategy.*

ABSTRAK

Pertumbuhan pasar saham di Indonesia telah berkembang pesat, pada tahun 2022 tercatat total 10,3 juta investor. Untuk memaksimalkan portofolio mereka, investor mencari strategi investasi yang sederhana dan dapat diterapkan. Salah satu strategi tersebut, yang berbasis pada imbal hasil dividen, semakin populer di Amerika Serikat tetapi masih kurang dimanfaatkan di Indonesia. Penelitian ini bertujuan untuk menganalisis penerapan strategi investasi berbasis imbal hasil dividen di bursa saham Indonesia, khususnya pada indeks saham IDX High Dividend 20, untuk menentukan apakah dapat menghasilkan hasil yang serupa dengan indeks saham Dow Jones. Data historis dari tahun 2018 hingga 2022 tentang saham IDX High Dividend 20, termasuk harga penutupan pada akhir tahun dan dividen tahunan, digunakan untuk menghitung imbal hasil dividen dan membentuk portofolio yang terdiri dari 10 saham dengan yield tertinggi. Pendekatan ini disebut The Dogs of the Dow, di mana dalam penelitian ini, variasi lain dari Dogs of the Dow seperti Dogs of the Dow X (Dow 7), Top Low 5 (Dow 5), Top Low 4 (Dow 4), dan alokasi dana 4 (Foolish 4) dimanfaatkan. Hasil penelitian menunjukkan bahwa strategi investasi berbasis imbal hasil dividen sederhana untuk

diterapkan dan dapat memberikan kinerja tinggi, sehingga menjadikannya pilihan yang menguntungkan bagi investor.
Keywords: Bursa Efek Indonesia, Imbal hasil, IDX high dividend 20, The Dogs of the Dow, dan strategi investasi.

INTRODUCTION

Investment refers to the act of allocating funds or resources with the expectation of generating income or profit over time. An investment can take many forms, such as stocks, bonds, mutual funds, real estate, commodities, or alternative investments such as art or collectibles. The goal of investment is generally to grow or preserve wealth, generate income, or achieve long-term financial goals such as retirement or funding education. The primary goal of investment is to earn a return on the money invested, which may come in the form of interest, dividends, capital gains, or rental income. However, different investment vehicles carry different risks and potential returns, and investors must consider their individual goals, risk tolerance, and time horizon before choosing an investment strategy (Investopedia, 2023).

The increase in the number of stock investors is driven by their motives for obtaining maximum returns. This is because as confirmed by Roy and Joseph (2018) that the main target of investment is return, in which the higher the return of the stocks invested, then the greater the opportunity for investors to hold these stocks. Therefore, the investor's skills for analyzing which stocks that are predicted to be profitable will determine their success in obtaining stocks with the highest yields in the future. To sharpen these skills, then knowledge related to the development of stock performance and investment strategies are absolutely necessary for investors in order to be able to predict accurately, which stocks have the most potential to provide maximum returns for them (Prabakaran, 2018).

Given this matter, the Dogs of The Dow approach could be a viable alternative for individual investors who are aiming to maximize their returns on investment. This is because the approach can offer various benefits to investors in terms of more strategic investment decisions. These benefits comprise selecting high dividend-yield stocks with sound fundamentals, featuring companies that are among the market leaders, carrying a relatively lower risk, and reportedly outperforming the overall market

METHODOLOGY

A. Conceptual Framework

The conceptual framework utilized in this research:

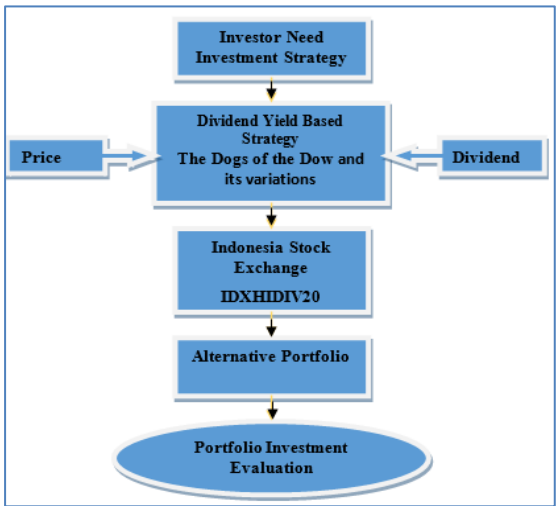

Figure 1. Conceptual Framework

The study aims to test the effectiveness of The Dogs of The Dow and its variations strategy on the IDXHIDIV20 stocks index listed on the Indonesia Stock Exchange. Investors are motivated to achieve investment success by employing various strategies,

including the dividend yield strategy. This strategy focuses on the dividends received and stock prices as indicators of investment success. Dividends reflect a company's wealth, while stock prices fluctuate throughout the business cycle.

The Dogs of The Dow variations is an updated version of the Dogs of the Dow strategy, known for its superior performance compared to the Dogs of the Dow and the Dow Jones Industrial Average (DJIA). This study utilizes the conceptual framework to analyze and identify the most profitable portfolio based on the Dogs of The Dow strategy. The selected portfolios from the IDXHIDIV20 stock index will be evaluated in terms of profitability and associated risks. The evaluation results will provide valuable insights into the best investment choices and their potential for profitability

B. Method of Data Collection, Analysis, and Limitations.

Data for this research will be collected from secondary sources. Secondary Data will be gathered through the analysis of the current and historical performance of the "Dogs of the Dow" strategy and its variations. This will involve obtaining the list of the IDX High Dividend 20 (IDXHIDIV20) stocks and their dividend yields at the end of each year for the period (2018 to 2022). This data will be collected from financial databases Yahoo Finance, stockbit, and IDX website as reliable financial data. This data will form the crux of the "Dogs of the Dow" strategy. Additional data is also important in providing a theoretical and contextual understanding of the research topic. The secondary data will be collected from academic databases like Digilib ITB, Google Scholar, EBSCOhost, and other resources where relevant research studies, papers, theses, and articles about the "Dogs of the Dow" strategy have been published. This data will help build a comprehensive understanding of the existing body of research on the topic, highlight gaps in the current knowledge, and position the current study within the broader academic discourse. The mentioned secondary informed on the literature of this research

While the research attempts to provide a comprehensive assessment, factors such as global geopolitical events, regulatory changes, and sudden market disruptions, which could potentially impact the strategy's effectiveness, might not be fully accounted for in the analysis. The Stock buy and Sell will be bought on 1st date in January (for all stock mentioned in Dog of the Dow) based on the latest IDX High Dividend 20, held for 1 year, and sell it in December (Sell all the stock chosen portfolio) considering cost sell (0.3%) and buy (0.2%).

C. Dividend Yield Investment Strategy

Portfolio Theory

Portfolio theory, more formally known as modern portfolio theory (MPT), was first introduced by Harry Markowitz in his 1952 paper, "Portfolio Selection," and later expanded in his 1959 book, "Portfolio Selection: Efficient Diversification of Investments." At its core, MPT is about maximizing return for a given level of risk by carefully choosing the proportions of different assets in a portfolio. The key insight of MPT is that the risk and return of a portfolio is not simply the weighted average of its component assets, but also depends on how those assets interact with each other—specifically, how they correlate.

This means that by combining assets that are not perfectly positively correlated, an investor can potentially create a portfolio with less risk than its individual parts. In other words, the whole can be less risky than its parts. This is the concept of diversification—the idea that spreading investments across a variety of assets or asset classes can potentially reduce risk. To build an optimal portfolio according to MPT, one must consider each asset's expected return and standard deviation (a measure of risk), as well as the correlation between every pair of assets in the portfolio. The goal is to find the set of weights that minimizes the portfolio's standard deviation for a given expected return, or equivalently, maximizes expected return for a given standard deviation. The set of portfolios that achieves this is known as the efficient frontier. According to MPT, an investor's optimal portfolio lies somewhere along the efficient frontier, depending on their risk tolerance (Markowitz, H. (1952). Portfolio selection. The Journal of Finance, 7(1), 77-91).

Portfolio Return

The return of each stock can be calculated using the formula:

$$Return = \frac{Ending\ price - Beginning\ Price}{Beginning\ Price}$$

The expected return of a portfolio can be calculated by taking the weighted average of the expected returns of the individual securities within the portfolio. The portfolio weights represent the percentages of the total value of the portfolio that are allocated to each asset. These weights are assumed to sum up to 100 percent or 1.0, indicating that

$$w1 + w2 + \cdots . + w_n \sum_{i=1}^{n} wi$$

all the funds within the portfolio are fully invested (Bodie, Z., Kane, A., & Marcus, A. J. (2014).

The expected return (Geometric Return) on any portfolio p can be calculated as:

$$E(R_p) = \sum_{i=1}^{n} W_i E(R_i)$$

E (R_p) = The expected return of the portfolio
w_i = The Portfolio weight for the ith security
E (R_i) = The expected return on the ith security
N = The number of different securities in the portfolio

Portfolio Risk

The risk of a portfolio refers to the uncertainty or variability of its returns. It is influenced by the individual risks of the assets held within the portfolio, as well as the correlations among those assets. Measuring portfolio risk is essential for investors to understand the potential volatility and downside associated with their investment choices.

There are several common measures used to quantify portfolio risk:

1. Standard Deviation: This statistical measure calculates the dispersion of returns around the average return of the portfolio. A higher standard deviation indicates greater variability and higher risk.
2. Beta: Beta measures the sensitivity of the portfolio's returns to changes in the overall market. A beta greater than 1 indicates higher volatility compared to the market, while a beta less than 1 suggests lower volatility.

3. Value at Risk (VaR): VaR estimates the maximum potential loss that a portfolio could experience within a given confidence level and time frame. It provides an estimate of the downside risk in dollar terms. Conditional Value at Risk (CVaR): Also known as Expected Shortfall, CVaR measures the average loss beyond the VaR threshold. It provides further insights into the severity of potential losses.
4. Sharpe Ratio: The Sharpe ratio evaluates the risk-adjusted return of a portfolio by considering the excess return earned per unit of risk. It combines the portfolio's return and its volatility or standard deviation.
5. Drawdown: Drawdown measures the peak-to-trough decline in portfolio value during a specific period. It helps assess the magnitude of losses a portfolio might experience during downturns.

The calculation of the variance of the portfolio =

$$\sigma^2 = \sum_{j=1}^{n} \sum_{i=1}^{n} wj\ wi\ Cov(r_i, r_j)$$

The variance of multi-Asset portfolio =

$$\sigma^2 = [w_1\sigma_1 \ \dots \ w_n\sigma_n] \ x \begin{bmatrix} 1 & \rho_{12} & \cdots & \rho_{1n} \\ \rho_{21} & 1 & \cdots & \rho_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \rho_{n1} & \cdots & \cdots & 1 \end{bmatrix} x \begin{bmatrix} w_q\sigma_1 \\ \vdots \\ w_n\sigma_n \end{bmatrix}$$

The Standard deviation of the portfolio = $\sigma = \sqrt{\sigma^2}$

σ = Standard deviation portfolio

W_n = The portfolio weight for the *n*th stock

σ_n = The annual standard deviation for the *n*th stock

ρ_{1n} = The Correlation-coefficient for the *n*th stock

n = The number of different stocks in the portfolio

Portfolio Performance Evaluation

One measure of portfolio performance evaluation is "Sharpe Ratio". Portfolio performance evaluation using the Sharpe ratio involves assessing the risk-adjusted return of a portfolio. The Sharpe ratio measures the excess return generated by a portfolio per unit of risk taken. Below is how to calculate and interpret the Sharpe ratio for portfolio performance evaluation Bodie, Z., Kane, A., & Marcus, A. J. (2014):

1. Calculate the average return of the portfolio: Determine the average return of the portfolio over a specific time period, such as a year. This can be calculated by taking the arithmetic mean of the portfolio's periodic returns.
2. Calculate the risk-free rate: Determine the risk-free rate, such as the yield on Treasury bills or government bonds, which represents the return on a risk-free investment.
3. Calculate the portfolio's excess return: Subtract the risk-free rate from the average return of the portfolio to obtain the excess return. The excess return represents the additional return earned by the portfolio above the risk-free rate.
3. Calculate the portfolio's standard deviation: Calculate the standard deviation of the portfolio's returns, which measures the volatility or risk of the portfolio. The standard deviation quantifies the dispersion of returns around the average return.
5. Calculate the Sharpe ratio: Divide the portfolio's excess return by its standard deviation. The formula for the Sharpe ratio is: Sharpe Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Standard Deviation.
6. Interpretation of the Sharpe ratio: A higher Sharpe ratio indicates a better risk-adjusted performance. A positive Sharpe ratio indicates that the portfolio is generating excess returns relative to the risk taken. A Sharpe ratio of zero suggests that the

portfolio is earning returns in line with the risk-free rate, while a negative Sharpe ratio implies that the portfolio is underperforming the risk-free rate

RESULTS AND DISCUSSION

A. The Dog of The Dow Portfolio

In resolving the business problem presented in this final project, we can devise five unique portfolio alternatives. These portfolios will be constructed using a dividend yield strategy, selecting stocks from the IDX High Dividend 20 that have the highest dividend yield. There are several strategic alternatives available for these portfolios:

1. The Dog of the Dow (Dow 10). This portfolio is the original The Dog of the Dow theory, where obtained from 10 highest yield stocks of IDX High Dividend 20 stock index.
2. Dow 7, this portfolio has other name The Dog of The Dow X, where obtained from 7 highest yield stocks of IDX High Dividend 20 stock index.
3. Dow 5, From the top 10 highest-yield stocks of the IDX High Dividend 20, we'll exclude the five with the highest prices. The idea behind this strategy is that stocks with lower prices tend to have greater upward mobility.
4. Dow 4, from Dow 5 above, we will exclude the lowest-priced stocks from the selection. This strategy is designed to minimize risk, as the cheapest stocks might be associated with companies that are experiencing financial difficulties, and therefore may take a longer time to rebound.
5. The Foolish 4, is a variation from Dow 4 where the lowest prices stocks get the highest allocation (40%) where the remaining stocks will have an equal share which is 20% each.

Because the IDX High Dividend 20 stock index change at a certain time, this analysis will imply buying all the stocks listed on certain portfolio IDX High Dividend 20 and selling all stocks at the end of the year to purchase new portfolio based on IDX High Dividend 20 the next year.

The alternative portfolio of dividend yield investment strategy formed from the dividend yield calculation above for each particular year as below (all dividend and stock price mentioned is in Indonesian Rupiah):

a. IDX High Dividend 20

Table 1. IDXHIDIV20 year 2018

Stocks Code	Stocks Name	Dividend	Stock Price	Dividend yield
ITMG	Indo Tambangraya Megah Tbk.	3260	20250	16.10%
LPPF	Matahari Department Store Tbk.	458	5600	8.17%
ADRO	Adaro Energy Tbk.	99	1215	8.11%
BJTM	Bank Pembangunan Daerah Jawa Timur Tbk.	44	690	6.39%
SIDO	Industri Jamu dan Farmasi Sido Tbk.	22	417	5.28%
UNTR	United Tractors Tbk.	1258	27350	4.60%
TLKM	Telekomunikasi Indonesia (Persero) Tbk.	168	3750	4.47%
BJBR	Bank Pembangunan Daerah Jawa Barat dan Banten Tbk.	90	2044	4.42%
DMAS	Puradelta Lestari Tbk.	7	159	4.09%
INDF	Indofood Sukses Makmur Tbk.	302	7450	4.05%
INTP	ɔement Tunggal rakarsa Tbk.	700	18450	3.79%
GGRM	Gudang Garam Tbk.	2600	83625	3.11%
BBRI	Bank Rakyat Indonesia (Persero) Tbk	107	3571	2.99%
BBNI	Bank Negara Indonesia (Persero) Tbk.	256	8800	2.90%
HMSP	H.M. Sampoerna Tbk.	107	3710	2.89%
BMRI	Bank Mandiri (Persero) Tbk.	100	3688	2.70%
ASII	Astra International Tbk.	190	8225	2.31%
UNVR	Unilever Indonesia Tbk.	183	9080	2.02%

BBCA	Bank Central Asia Tbk.	52	5200	1.00%
MPMX	Mitra Pinasthika Mustika Tbk.	0	905	0.00%

Table 2. IDXHIDIV20 year 2019

Stocks Code	Stocks Name	Dividend	Stock Price	Dividend yield
ITMG	Indo Tambangraya Megah Tbk.	2750	11475	23.97%
PTBA	Tambang Batubara Bukit Asam Tbk	340	2660	12.77%
LPPF	Matahari Department Store Tbk.	333	4210	7.91%
BJBR	Bank Pembangunan Daerah Jawa Barat dan Banten Tbk.	89	1182	7.56%
BJTM	Bank Pembangunan Daerah Jawa Timur Tbk.	46	685	6.66%
UNTR	United Tractors Tbk.	1236	21525	5.74%
HMSP	H.M. Sampoerna Tbk.	117	2100	5.58%
GGRM	Gudang Garam Tbk.	2600	53000	4.91%
TLKM	Telekomunikasi Indonesia (Persero) Tbk.	164	3970	4.13%
ADRO	Adaro Energy Tbk.	56	1555	3.60%
BMRI	Bank Mandiri (Persero) Tbk.	121	3838	3.14%
BBRI	Bank Rakyat Indonesia (Persero) Tbk	131	4293	3.05%
ASII	Astra International Tbk.	211	6925	3.05%
INTP	Indocement Tunggal Prakarsa Tbk.	550	19025	2.89%
UNVR	Unilever Indonesia Tbk.	241	8400	2.87%
BBTN	Bank Tabungan Negara (Persero) Tbk.	53	2044	2.59%
BBNI	Bank Negara Indonesia (Persero) Tbk.	201	7850	2.56%
INDF	Indofood Sukses Makmur Tbk.	171	7925	2.16%
INKP	Indah Kiat Pulp & Paper Tbk.	100	7700	1.30%
BBCA	Bank Central Asia Tbk.	71	6685	1.06%

Table 3. IDXHIDIV20 year 2020

Stocks Code	Stocks Name	Dividend	Stock Price	Dividend yield
PTBA	Bukit Asam Tbk.	326	2810	11.62%
HMSP	H.M. Sampoerna Tbk.	120	1505	7.96%
ADRO	Adaro Energy Tbk.	109	1430	7.65%
ITMG	Indo Tambangraya Megah Tbk.	877	13850	6.33%
BMRI	Bank Mandiri (Persero) Tbk.	177	3162	5.59%
INTP	Indocement Tunggal Prakarsa Tbk.	725	14475	5.01%
TLKM	Telekomunikasi Indonesia (Persero) Tbk.	154	3310	4.65%
BBRI	Bank Rakyat Indonesia (Persero) Tbk.	168	4068	4.13%
INDF	Indofood Sukses Makmur Tbk.	278	6850	4.06%
UNTR	United Tractors Tbk.	976	26600	3.67%
BBNI	Bank Negara Indonesia (Persero) Tbk.	206	6175	3.34%
ASII	Astra International Tbk.	184	6025	3.05%
UNVR	Unilever Indonesia Tbk.	194	7350	2.64%
PGAS	Perusahaan Gas Negara Tbk.	42	1655	2.51%
TOWR	Sarana Menara Nusantara Tbk.	24	960	2.49%
KLBF	Kalbe Farma Tbk.	29	1480	1.96%
BBCA	Bank Central Asia Tbk.	111	6770	1.63%
CPIN	Charoen Pokphand Indonesia Tbk	81	6525	1.24%
GGRM	Gudang Garam Tbk.	0	41000	0.00%
LPPF	Matahari Department Store Tbk.	0	1275	0.00%

Table 4. IDXHIDIV20 year 2021

Stocks Code	Stocks Name	Dividend	Stock Price	Dividend yield
ADRO	Adaro Energy Tbk.	226	2250	10.06%
DMAS	Puradelta Lestari Tbk.	19	191	9.69%
HMSP	H.M. Sampoerna Tbk.	73	965	7.54%
ITMG	Indo Tambangraya Megah Tbk.	1385	20400	6.79%
INDF	Indofood Sukses Makmur Tbk.	278	6325	4.40%
TLKM	Telkom Indonesia (Persero) Tbk.	168	4040	4.16%
INTP	Indocement Tunggal Prakarsa Tbk.	500	12100	4.13%
UNVR	Unilever Indonesia Tbk.	166	4110	4.04%
UNTR	United Tractors Tbk.	808	22150	3.65%
BMRI	Bank Mandiri (Persero) Tbk.	110	3512	3.14%
PTBA	Bukit Asam Tbk.	75	2710	2.76%
TOWR	Sarana Menara Nusantara Tbk.	28	1125	2.49%
BBRI	Bank Rakyat Indonesia (Persero) Tbk.	99	4080	2.42%
ASII	Astra International Tbk.	132	5700	2.32%
CPIN	Charoen Pokphand Indonesia Tbk	112	5950	1.88%
KLBF	Kalbe Farma Tbk.	28	1615	1.73%
BBCA	Bank Central Asia Tbk.	111	7300	1.53%
BBNI	Bank Negara Indonesia (Persero) Tbk.	44	6750	0.65%

PGAS	Perusahaan Gas Negara Tbk.	0	1375	0.00%
WSBP	Waskita Beton Precast Tbk.	0	114	0.00%

Table 5. IDXHIDIV20 year 2022

Stocks Code	Stocks Name	Dividend	Stock Price	Dividend yield
PTBA	Bukit Asam Tbk.	689	3690	18.66%
ITMG	Indo Tambangraya Megah Tbk.	7168	39025	18.37%
MPMX	Mitra Pinasthika Mustika Tbk.	180	1120	16.07%
HEXA	Hexindo Adiperkasa Tbk.	799	5275	15.15%
ADRO	Adaro Energy Indonesia Tbk.	393	3850	10.20%
HMSP	H.M. Sampoerna Tbk.	63	840	7.54%
ADMF	Adira Dinamika Multi Finance Tbk.	607	9000	6.74%
UNTR	United Tractors Tbk.	1723	26075	6.61%
ASII	Astra International Tbk.	282	5700	4.95%
INDF	Indofood Sukses Makmur Tbk.	278	6725	4.13%
TLKM	Telkom Indonesia (Persero) Tbk.	150	3750	4.00%
BMRI	Bank Mandiri (Persero) Tbk.	180	4962	3.63%
BBRI	Bank Rakyat Indonesia (Persero) Tbk.	174	4940	3.53%
UNVR	Unilever Indonesia Tbk.	153	4700	3.26%
TOWR	Sarana Menara Nusantara Tbk.	24	1100	2.19%
ANTM	Aneka Tambang Tbk.	39	1985	1.95%
CPIN	Charoen Pokphand Indonesia Tbk	108	5650	1.91%
BBCA	Bank Central Asia Tbk.	155	8550	1.81%
KLBF	Kalbe Farma Tbk.	35	2090	1.67%
BBNI	Bank Negara Indonesia (Persero) Tbk.	146	9225	1.59%

B. Return of Portfolio

This study examines the investment outcomes of five different Dogs of The Dow (DOD) portfolios considering the cost of selling (0.3%) and buying (0.2%). Using the Geometric average return the result as follows:

Table 6. Dividend Yield Strategy Return

Return						
Portfolio	2018	2019	2020	2021	2022	Average
Dow 10	-16.70%	-25.86%	17.66%	14.26%	36.45%	5.16%
Dow 7	-20.85%	-34.88%	17.78%	24.80%	45.17%	6.40%
Dow 5	-10.38%	-25.98%	11.43%	20.20%	37.39%	6.53%
Dow 4	-8.75%	-32.53%	6.02%	27.27%	47.35%	7.87%
Foolish 4	1.51%	-37.65%	1.21%	16.50%	45.28%	5.37%

Where the IDX High Dividend 20 Return a specific comparison and IHSG a general comparison from The Dogs of the Dow portfolio as below:

Table 7. IDXHIDIV 20 and IHSG Return

Expected Return						
Portfolio	2018	2019	2020	2021	2022	Average
IDXHIDIV 20	-8.00%	-15.43%	10.64%	8.97%	27.50%	4.74%
IHSG	-6.50%	-3.61%	4.23%	13.12%	3.91%	2.23%

From the data above, it is shown that the dividend yield investment strategy beat the market on average. The portfolio gave minus return in year 2018 due to the crisis financial in the world where the stock price is going down and in 2019 where the covid impacted the overall stock market but then rebound at the end of 2019 and in 2020 onwards giving a positive return.

The return analysis reveals that the IDX High Dividend 20 (IDXHIDIV20) market index lags behind all the DOD variants concerning return rates. Between 2018 and 2022, the IDXHIDIV20's geometric return (the most precise method to calculate the annualized rate of return) was 4.74%, whereas the Dow-10, Dow-7, Dow-5, Dow-4, and Foolish 4 portfolios saw returns of 5.16%, 6.40%, 6.53%, 7.87%, and 5.37%, respectively. Interestingly, the portfolio that includes the lowest-priced stocks from the Dogs of the Dow (the Small Dogs 4 or Dow-4) outperformed the rest in each performance metric considered in this study.

C. Risk of Portfolio

After calculation for the return, the next step is to know how is the risk of The Dogs of the Dow portfolio compared to IDXHIDIV20 and IHSG.

Table 8. Dividend Yield Strategy Portfolio Risk

Standard Deviation/Risk					
Portfolio	2018	2019	2020	2021	2022
Dow 10	10.76%	11.84%	15.29%	11.49%	20.43%
Dow 7	12.09%	15.31%	16.75%	12.95%	22.59%
Dow 5	14.02%	15.87%	16.40%	11.60%	13.39%
Dow 4	13.92%	16.14%	20.23%	11.61%	15.01%
Foolish 4	15.60%	19.73%	22.51%	8.06%	15.22%

Table 9. IDXHIDIV20 and IHSG Risk

Standard Deviation/Risk					
Portfolio	2018	2019	2020	2021	2022
IDXHIDIV 20	13.20%	13.23%	15.78%	13.50%	13.15%
IHSG	9.82%	8.41%	25.80%	9.35%	8.37%

Based on the data above the risk of the dividend yield strategy portfolio has been relatively more volatile over the past 5 years compared to both IDXHIDIV 20 and IHSG

D. Portfolio Performance Evaluation

Calculation of risk and return of the portfolio separately above imply a 'risk' or 'volatility' effect, leading to the next conclusion of this study, which evaluates the portfolios' performance adjusted for risk. In this research the performance-adjusted risk was calculated using the Sharpe ratio, below are the comparison result:

Table 10. Dividend Yield Strategy Portfolio Sharpe Ratio

Sharpe Ratio						
Portfolio	2018	2019	2020	2021	2022	Average
Dow 10	-2.03	-2.66	0.70	0.93	1.59	-0.29
Dow 7	-2.15	-2.64	0.65	1.64	1.83	-0.13
Dow 5	-1.10	-1.99	0.27	1.44	2.50	0.22
Dow 4	-0.99	-2.36	-0.05	2.04	2.90	0.31
Foolish 4	-0.23	-2.19	-0.26	1.61	2.72	0.33

Table 11. IDXHIDIV20 and IHSG Sharpe Ratio

Sharpe Ratio						
Portfolio	2018	2019	2020	2021	2022	Average
IDXHIDIV 20	-0.99	-1.59	0.23	1.80	1.80	0.25
IHSG	-1.18	-1.10	-0.11	1.03	0.00	-0.27

This research employs the Sharpe ratio to analyze the investment performance since the results from return analysis may be driven by the underlying risk of the portfolios. To account for the riskiness of the portfolio, the Sharpe ratio determines the rate of excess return (i.e., return over the risk-free rate) per unit of risk. Analyzing portfolio performance with the Sharpe ratio allows the comparison to reflect the true reward/return earned for the equivalent risk

The research showcases the yearly Sharpe ratios of the five Dogs of the Dow (DOD) portfolios and the IDX High Dividend 20, spanning from 2018 to 2023. The findings suggest that the DOD portfolios outperform IDX High Dividend 20, doing so four times out of five (or 80%) over 2018-2023, and even better during 2020-2022, where DOD strategies consistently surpassed IDX High Dividend 20. For the DOD portfolios, the results seem fairly distributed among Dow-10, Dow-7, Dow-5, Dow-4, and Foolish 4. This suggests that, when considering risk, the DOD strategies generally perform better than the IDX High Dividend 20 index and IHSG as a whole. This research contends that the superior performance of the DOD approaches even with the tough effect of covid 2019 can be seen in the high negative Sharpe ratio whereas IDX Highdevidend20 in 2019 slightly has a better Sharpe ratio due to more differentiation on the portfolio.

CONCLUSION

This research provides an analysis of various portfolios' performances from 2018 to 2022. The analysis was conducted using metrics like expected return, standard deviation (a measure of risk), and the Sharpe ratio (which measures risk-adjusted returns). Based on the analysis, there is a significant variation in the performance of different portfolios from 2018 to 2022, which underscores the importance of diversification and understanding the risk/return trade-off. Some portfolios exhibited high expected returns, but with greater volatility, while others showed lower expected returns but with less volatility.

1. Dividend yield investment strategy does beat the market in average return for five-year historical data analysis,
   a. Dow 10 gives return 5.16%, with 0.43% above IDX High Dividend 20 and 2.93% above IHSG.
   b. Dow 7 gives a return 6.40%, with 1.67% above IDX High Dividend 20 and 4.17% above IHSG

c. Dow 5 gives return 6.53%, with 1.79% above IDX High Dividend 20 and 4.30% above IHSG
d. Dow 4 gives return 7.87%, with 3.14% above IDX High Dividend 20 and 5.64% above IHSG
e. Foolish 4 gives return 5.37%, with 0.63% above IDX High Dividend 20 and 3.14% above IHSG

2. The Dividend yield investment strategy portfolios outperform IDX High Dividend 20 and IHSG. Four times out of five (or 80%) over 2018-2023, and even better during 2020-2022, where DOD strategies consistently surpassed IDX High Dividend 20 and IHSG. For the DOD portfolios, the results seem fairly distributed among Dow-10, Dow-7, Dow-5, Dow-4, and Foolish 4. This suggests that, when considering risk, the DOD strategies generally perform better than the IDX High Dividend 20 index and IHSG as a whole. The best performance by Sharpe Ration is formed from "Foolish 4" portfolio and followed by "Dow 4" portfolio.
3. Examining the returns and investment performance, we can ascertain that The Dogs of The Dow strategy could serve as a potential alternative for investors seeking optimal returns. The application of The Dogs of The Dow method can offer benefits to investors by facilitating more strategic and well-informed investment decisions.
4. Implementation of The Dog of the Dow based on the research:
   a) Prepare a portfolio planning worksheet.
   b) List the closing prices.
   c) List the dividend.
   d) List the yield.
   e) Rank the yield.
   f) Identify the lowest-priced high-yielders.
   g) Select the portfolio (from the alternative portfolio):
      - Top 10 yield portfolio and invest with equal weightage.
      - Top 7 yield portfolios and invest with equal weightage.
      - 5 Lowest prices from top 10 yield stock of portfolio and invest with equal weightage
      - 4 highest prices from top 5 lowest price which included in top 10 yield stock in portfolio and invest with equal weightage.
      - 4 highest prices from top 5 lowest price which included in top 10 yield stock in portfolio and invest 40% to the least stock price and invest equally 20% to other stocks.
   h) Sell All the stock in portfolio and change with new list of the same index (on this research IDX High Dividend 20)
   i) Compare The Dogs of The Dow versus Index (on this research IDX High Dividend 20)
   j) Analysis portfolio Risk and Return.
   k) Evaluate performance portfolio.
   l) Analysis simulation portfolio.

Investors' Risk Profile: Understanding one's risk tolerance is crucial. For risk-averse investors, portfolios like "IDXHIDIV 20" that demonstrated lower volatility might be more suitable. Risk-tolerant investors might consider portfolios like "Dow 4" or "Foolish 4", which demonstrated higher returns and high Sharpe ratios, albeit with more risk.

Long-term Perspective: Investing should be viewed with a long-term perspective. While some portfolios may perform poorly in some years, they may outperform in others. The "Foolish 4" portfolio is an example where despite having a negative Sharpe ratio in some

years, it recovered and demonstrated a high Sharpe ratio in 2022.

1. For future research it is recommended to use The Dogs of The Dow for IDXHIDIV 20 in a longer-term period to analyze this method over time and consider below
   - Deeper Analysis of Risk Factors: This study could be extended by a more detailed examination of the risk factors impacting each portfolio. This would provide a better understanding of the source of volatility and the potential for risk mitigation.
   - Impact of Macroeconomic Factors: A research project could examine how macroeconomic factors, such as interest rates, inflation, and GDP growth, impact the performance of the portfolios. This would help in understanding how broader economic conditions affect investment strategies.
   - Investment Strategies: A comparative study of different investment strategies could be conducted. For instance, the 'Dogs of the Dow' strategy, value investing, growth investing, and others could be compared to see which performs best over the long term.

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