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COMPARISON OF ACTIVE AND PASSIVE INVESTMENT STRATEGIES ON THE INDONESIAN STOCK EXCHANGE 2013 -2024 WITH THE MAGIC FORMULA METHOD

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ABSTRACT

This research aims to compare Active and Passive Investment Strategies on the Indonesian Stock Exchange for the 2013-2024 Using the Magic Formula Method introduced by Joel Greenblatt (2010), which is then optimized again using the Single Index Model. Magic formula is a simple stock selection strategy by sorting stocks based on Return on Capital (ROC) and Earning Yield (EY). The shares to be selected are included in the Kompas100 Index. The selected shares have also been listed on the stock exchange for a minimum of 18 months. Shares included in financial shares will be eliminated. The next step is to select 20 shares to be formed into a Portfolio based on the top ranking of the ROC and EY scores, these 20 shares will be optimized using the Single Index Model method. For active strategies, rebalancing will be carried out every year, while for passive strategies, buy and hold will be carried out. The results of this active strategy will be compared with passive strategies and IHSG. Portfolio measurement will be carried out in 4 ways, namely: return, Sharpe ratio, Treynor ratio and Jensen Alpha. The return from the optimized Magic Formula shows a value of 217.04%, higher than the original Magic Formula return of 43.43% and the passive strategy of 35.04% and the IHSG return of 47%, but the final research results of the portfolio show measurements based on return, ratio Sharpe, and Treynor ratios were not significantly different, being significantly different only from Jensen Alpha measurements.

KEYWORDS *Active and Passive Strategy, Magic Formula, Portfolio, Return, Single Index Model*

INTRODUCTION

Entering the beginning of 2020, the global community was faced with various problems, resulting in a very high inflation rate. The increase in inflation was

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caused by various issues, starting from the trade war between the United States and China, followed by the COVID-19 pandemic, and further escalated by the conflict between Russia and Ukraine. The impacts of these events reached Indonesia, causing a significant rise in the inflation rate, peaking at 5.71% in October 2022. This inflation is projected to start decreasing in 2023, with it already reaching 3.27% by August 2023. Based on surveys conducted in America and Germany, people are deeply concerned about the impact of this inflation on their standard of living (Shiller, 1997). Therefore, alternative methods besides saving in banks, which offer higher returns such as through investments, are needed. Investment vehicles in the capital market are diverse, including stocks, bonds, mutual funds, or ETFs, each with different risk profiles and returns.

In addition to the diverse investment instruments, the financial market consists of various types of investors who follow different investment strategies and styles. However, most investors aim to outperform the market. This common goal prompts investors to ask themselves the same fundamental question: how to beat the market (Ker-fox, 2017)? Every investor seeks the best ways and strategies to achieve high returns with low risk. According to (Tandelilin, 2017), there are two strategies for constructing stock portfolios: passive strategy and active strategy.

The performance of the average equity mutual funds managed using an active strategy, which charges management fees to investors, reflected through the Bareksa Equity Mutual Fund Index from January 2013 to June 2023, did not perform better than the Composite Stock Price Index (IHSG) used as a benchmark. For comparison, from January 2013 to June 2023, the IHSG had an average performance of 5.10%, while the Bareksa Equity Mutual Fund Index had an average performance of 0.08%. Historically, the IHSG's return has proven to outperform inflation, as seen in Table 1.1, where data from 2014 to June 2023 shows that the IHSG successfully surpassed inflation. Hence, stocks can be considered as one of the investment instruments considered by investors from various layers of society to obtain higher returns than inflation. Data from PT. Indonesia Central Securities Depository (KSEI) as of August 2023 recorded that the number of investors in the Indonesian capital market reached 11,581,533, with 10,852,684 investing in mutual funds, and 4,948,772 investing in stocks and other securities. Of these investors, 32.82% are civil servants, private sector employees, and teachers, 6.64% are housewives, and 26.58% are students. Based on the above data, if students, housewives, teachers, and employees invest in equity mutual funds, they will generally find their investment returns lagging behind inflation. Therefore, to invest in the capital market, a simple strategy is needed to reduce investment risks and outperform the results of the IHSG.

All investors aim to maximize returns, hence this study will analyze investment strategies using the Magic Formula method. It is hoped that the simplicity of the Magic Formula, which only uses 2 metrics or variables in determining stock portfolios, can also be used by various layers of society. Several studies have proven that actively managed portfolios using the Magic Formula method can provide better arithmetic returns compared to their respective benchmarks (Jannah & Imansyah, 2019; Indrapratama & Sumirat, 2022; Sasmitapura et al., 2022).

Table 1. Inflation Data, IHSG Return, Kompas100, and Equity Mutual Fund Index (RD Saham) 2014 - June 2023

Year	Inflation	IHSG	Kompas100	Equity Mutual Fund Index
Jun-23	3.52%	-2.76%	-0.40%	-1.08%
2022	5.51%	4.09%	-0.82%	-1.18%
2021	1.75%	10.08%	-3.42%	0.32%
2020	1.68%	-5.09%	-5.52%	-8.20%
2019	2.72%	1.70%	1.52%	-13.65%
2018	3.13%	-2.54%	-6.35%	-3.50%
2017	3.30%	19.99%	20.31%	9.32%
2016	3.02%	15.32%	13.17%	7.83%
2015	3.35%	-12.13%	-13.79%	-13.59%
2014	8.36%	22.29%	25.77%	24.52%
Rata2	3.63%	5.10%	3.05%	0.08%
CAGR	3.62%	4.54%	2.38%	-0.50%

Source: www.bi.go.id and www.Bareksa.com, reprocessed

Research conducted by Jannah & Imansyah, (2019) aimed to investigate the performance of the Magic Formula investment strategy introduced by Joel Greenblatt applied to the Indonesia Stock Exchange. The results concluded that the Magic Formula could be applied to the Indonesia Stock Exchange and outperform the average return of the Composite Stock Price Index (IHSG). The research used stock data included in the Kompas100 index from April 2013 to April 2018, spanning a 5-year historical data period to observe the consistency of the research results and surpass the minimum timeframe suggested by Joel Greenblatt for Magic Formula implementation. This research resulted in an average return of 12.67% compared to the IHSG return of 5.31%, indicating that the Magic Formula is a solid investment model, especially considering its simplicity, which only employs 2 metrics, namely ROC and Earning Yield. The Magic Formula works on average, thus (Greenblatt, 2010) in his book recommends buying a minimum of 20-30 stocks as a portfolio with equal weighting and a minimum usage period of 3 years for this method to work effectively.

Research conducted by Gustavsson & Stromberg (2017) concluded that it is possible to achieve significantly higher investment returns with the Magic Formula compared to the OMXS30 index in the Swedish stock market. This research was conducted from April 1, 2007, to March 31, 2017. In addition to comparing market returns, the risks inherent in investments were also considered through the use of the Sharpe Ratio, CAPM, and Fama and French's Three-Factor Model. The Magic Formula portfolio yielded a return of 21.25%, while the OMXS30 index yielded a return of 5.22%. The Sharpe Ratio yielded 0.769 for the Magic Formula, compared to 0.146 for the market. Furthermore, CAPM and Three-Factor Model analyses showed a significant excess return from the Magic Formula that could not be explained by risk, company size, or value.

Other research and backtesting conducted by Gunnar Juliao de Paula, (2016) on the Brazil stock market from 2006 to 2015 also showed that the Magic Formula

portfolio outperformed both benchmarks during the analysis period, namely Ibovespa and IBrX-100.

Meanwhile, research conducted by Davydov et al., (2016) from 1991 to 2013 on the Finland stock market showed that the Magic Formula yielded results that could beat the market, with a return of 19.26%, while the OMX CAP GI benchmark yielded a return of 13.63%. Interestingly, this study also compared several methods considered as Traditional Value Investment Strategies such as Earning to Price, Book to Price, Cash Flow to Price, and Dividends to Price. The study found that all tested strategies consistently outperformed the market. The EBIT/EV strategy yielded a return of 20.57%, better than the Magic Formula return of only 19.26%. Even when measured based on risk-adjusted return, namely the Sharpe Ratio metric, the EBIT/EV method provided the highest result compared to other strategies and was superior to the Magic Formula, with a Sharpe Ratio of 0.704. It's worth noting that EBIT/EV is one of the metrics of the Magic Formula.

The results of the above studies indicate that the Magic Formula can outperform benchmarks in stock indices in Finland, Brazil, Sweden, and Indonesia. Additionally, Jannah & Imansyah (2019) concluded that while the Magic Formula has a good track record based on previous research, a good track record is not the reason why investors should follow the Magic Formula. This is because the information presented is based on historical financial report data, while future pricing will heavily depend on the company's performance in the future. Future research could use longer timeframes and apply modifications to the Magic Formula.

Research conducted by Sasmitapura et al., (2022) aimed to prove that analyzing using the Magic Formula method, which is part of value investing, can be used by investors to select the right stocks and be profitable. The research period was from 2016 to 2020, using stocks listed on the Indonesia Stock Exchange in the LQ45 index as objects. The Magic Formula was chosen for its simplicity, only combining high Earnings Yield and Return on Capital. However, the research found that the geometric CAGR return of the Magic Formula could not provide better results compared to the IHSG return, both for portfolio compositions of 15, 20, and 25 stocks. But the geometric return with a portfolio composition of 15 stocks could outperform the LQ45 benchmark, which is the basis for forming the Magic Formula portfolio in the study. However, when calculated in arithmetic averages, portfolios with compositions of 20 and 25 stocks yielded returns of 5.82% and 5.62%, respectively, outperforming the LQ45 index, which yielded 3.71%, but not outperforming the IHSG, which yielded 6.52%. Additionally, other research by Ye, (2013) conducted in the Shanghai stock market from 2006 to 2011 showed that the Magic Formula yielded higher returns compared to the Shanghai Stock Exchange index on average.

Research conducted by Kakinuma & Hongratanawong, (2014) stated that the Magic Formula portfolio results from 1993 to 2012 in the Thailand stock market produced an annualized return of 34.1% compared to the SET index's annualized return of 9.6%. For the Japanese market, the Magic Formula portfolio yielded a return of 9.3% compared to the Nikkei 225 index's return of 1.7%. In the US market, the Magic Formula portfolio yielded a return of 15.5% compared to the S&P 500 index's return of 8.8%.

Similar research was also conducted in India from 2012 to 2019, which showed that the Magic Formula yielded a CAGR return of 13.89% compared to a return of 9.31% from the BSE Sensex Index. When measured using the Sharpe ratio, the Magic Formula method also outperformed its benchmark, with 0.31 compared to 0.20. Interestingly, in the early years, the Magic Formula did not show good results, but over time, it began to yield positive results. This aligns with Greenblatt's explanation (2010) in his book, suggesting that the Magic Formula should be given a minimum of 3-5 years to show good results. In their research, Preet et al. (2021) mentioned limitations where the return calculated for the benchmark indices did not account for dividends, but the portfolio return was adjusted with these variables. However, according to empirical results, these variables provided an additional average return of 1-2%. Sasmitapura et al., (2022) concluded that research conducted by forming Magic Formula stock portfolios from stocks included in the LQ45 index affected the overall research results because the return of the LQ45 index itself was not very good, only yielding a return of 1.44% below the IHSG return of 4.32%. Additionally, decision-making related to investments should not only be based on the Magic Formula but also require other supporting information and analyses for stock selection.

Research conducted by Indrapratama & Sumirat, (2022) from 2016 to 2022 aimed to provide options for new investors in Indonesia who are not very financially literate, thus reducing errors in stock selection. The methods recommended in their research are the Magic Formula strategy and the Acquirer's Multiple. The results of the research showed that the Magic Formula yielded significant results, with an arithmetic average return of 26.24%, while the IHSG only yielded an arithmetic average return of 8.56%. When using the Sharpe ratio to measure the return of a portfolio based on inherent risks, a figure of 0.930 was obtained compared to the Sharpe Ratio of the IHSG, which was 0.043. This research also explained Tobias Carlisle's strategy, namely the Acquirer's Multiple, which only uses 1 metric from the Magic Formula, namely EV/EBIT. Based on the arithmetic average return, a return of 26.32% was obtained, slightly superior to the Magic Formula return. Research conducted by Ye (2013) aimed to determine whether using value investing strategies could work well in the Shanghai stock market. This research compared investment strategies from several gurus, such as Benjamin Graham, Peter Lynch, and Joel Greenblatt, on the Shanghai stock exchange from 2006 to 2011. The study found that portfolios formed from Joel Greenblatt's and Peter Lynch's investment strategies yielded higher returns than the market. However, the number of stocks in the portfolio using Peter Lynch's investment strategy was much larger than Joel Greenblatt's Investment Strategy, although both succeeded in beating the market. Joel Greenblatt's investment strategy also uses fewer criteria than Benjamin Graham's and Peter Lynch's investment strategies, as mentioned in his book, that the Magic Formula strategy is based on only 2 simple metrics that can beat the market. Another study conducted by Audini & Dewi, (2022) in the Indonesian capital market showed that the Magic Formula could yield better returns than the IHSG and Kompas100. In conclusion, Indrapratama & Sumirat (2022) stated that both investment strategies from Joel Greenblatt and Tobias Carslisle yielded similar results, with Tobias Carslisle's strategy slightly outperforming Joel Greenblatt's in terms of

return and Sharpe ratio value. Therefore, this strategy is recommended for beginner investors because historically it can provide decent returns and only uses 1 measurement metric.

It is evident from Table 1.2. that several studies conducted by various researchers show that the results of Sasmitapura et al. (2022) differ significantly from other researchers. According to the researchers, this is because the data used did not have a very long period, only 5 years, and the end period coincided with the outbreak of the Covid19 pandemic. Additionally, the population data from LQ45 was too small, resulting in limited sample selection in portfolio formation. According to Sasmitapura et al. (2022), the performance of the LQ45 index itself, which was not very good, yielding only a return of 1.44% compared to the IHSG return of 4.32%, made the formed portfolio less optimal. The differences observed in previous research in the Indonesian capital market motivated the study of active strategies using the Magic Formula method in the Indonesian capital market with a longer period, where active strategies are suspected to provide better results than passive strategies. Thus, investors can achieve higher returns than the annual inflation rate in Indonesia and also higher than the Kompas100 and IHSG indices.

Table 2. Summary of Magic Formula Returns in Previous Research

No	Researchers	Title	Index	Index Return	Magic Formula Return
1	Miftahul Jannah and Fadlul Imansyah	Analysis of Magic Formula Investment Strategy in Indonesia Stock Exchange (April 2013 - April 2018)	IHSG	5.1%	12.67%
2	Oscar Gustavsson and Oskar Stromberg	Magic Formula Investing and The Swedish Stock Market (April 1, 2007 - March 31, 2017)	OMXS 30	5.22%	21.25%
3	Alexander Gunnar Juliao de Paula	Backtesting the Magic Formula in the Brazilian Stock Market (2006 - 2015)	IBrX100	1.69%	5.04%
4	Denis Davydov, Jarno Tikkanen, and Janne Äijö	Magic Formula vs. traditional value investment strategies in the Finnish stock market (1991 - 2013)	OMX CAP GI	13.63%	19.26%
5	Arif Indrapratama and Erman Arif Sumirat	Implementation of Magic Formula and Acquirer's Multiple Stock Investment Strategy in The Indonesia	IHSG	8.56%	26.24%

		Stock Exchange (2016-2022)			
6	Angga Sasmitapura, Michael, and Sandra Faninda	Portfolio Performance Analysis of Magic Formula on LQ45 Index in the Indonesia Stock Exchange (2016-2020)	IHSG	6.52%	5.82%
7	Yosuke Kakinuma and Hongratanawong, Lalita	Testing the Validity of Greenblatt's Magic Formula: Evidence from Thailand, Japan and US Stock Markets (1993-2012)	SET, Nikkei, S&P 500	9.6%, 1.7%, 8.8%	34.1%, 9.3%, 15.5%
8	Simmar Preet, Ankita Gulati, Arnav Gupta, and Aadit Aggarwal	Back Testing Magic Formula on Indian Stock Markets: An Analysis of Magic Formula Strategy (2012-2019)	BSE Sensex	9.31%	13.89%

Source: Compiled Research Data

The research objects used in this thesis are stocks listed on the Indonesia Stock Exchange represented by the Kompas100 index. The research period starts from 2013 to 2023. The Kompas100 index is the result of daily collaboration between Kompas and the Indonesia Stock Exchange aimed at complementing various existing investment references in the Indonesia Stock Exchange. The Kompas100 index was chosen because it consists of 100 company stocks traded on the Indonesia Stock Exchange, has high liquidity and market value, and also has good fundamentals and returns. Stocks in the Kompas100 index are estimated to represent 70-80% of the market capitalization of all listed parts in the IDX. Every six months, Kompas and the Indonesia Stock Exchange jointly evaluate which issuers will be included in the Kompas100 index. Some criteria for selecting the Kompas100 index include being listed on the IDX for a minimum of 3 months, calculations based on fundamental factors and company patterns passing through 2 stages of filtration from 150 stocks with the largest capitalization. The first stage selects only the top 60 stocks. The second stage selects 40 stocks based on returns. All stocks are considered based on value, volume, and frequency of transaction activity in the regular market. The research period from 2013 to 2023 was chosen because the Magic Formula requires a long period to provide optimal results.

In the world of value investing, there are many gurus whose strategies can be followed, but in this study, the Magic Formula investment strategy by Joel Greenblatt was chosen because this strategy is very simple as it only uses 2 metrics in stock selection, namely Earning Yield and ROC, making it very easy to follow for various segments of society. And based on several existing studies, it shows that

the Magic Formula can work well in the capital markets of several countries and in Indonesia.

RESEARCH METHOD

This research was conducted with the aim of proving six hypotheses that have been formulated as follows:

1. The first hypothesis aims to prove that an active portfolio strategy using the Magic Formula method by Joel Greenblatt can provide higher returns than the Composite Stock Price Index (IHSG). Therefore, the hypothesis is formulated as follows:
   Ha 1: The return of the active portfolio strategy using the Original Magic Formula is significantly greater than the return of the IHSG.
2. The second hypothesis aims to prove that an active portfolio strategy using the Magic Formula method by Joel Greenblatt, which has been optimized using the Single Index Model, can provide higher returns than the Composite Stock Price Index (IHSG). Therefore, the hypothesis is formulated as follows:
   Ha 2: The return of the active portfolio strategy using the Original Magic Formula is significantly greater than the return of the IHSG.
3. To achieve the third objective of the research, portfolio performance will be measured using four metrics: return, Sharpe ratio, Treynor ratio, and Jensen's alpha ratio. The hypotheses are formulated as follows:
   Ha 3: The return of the active portfolio strategy using the Magic Formula, optimized using the Single Index Model, is significantly greater than the return of the passive strategy.
   Ha 4: The Sharpe ratio of the active portfolio strategy using the Magic Formula, optimized using the Single Index Model, is significantly greater than the Sharpe ratio of the passive strategy.
   Ha 5: The Treynor ratio of the active portfolio strategy using the Magic Formula, optimized using the Single Index Model, is significantly greater than the Treynor ratio of the passive strategy.
   Ha 6: The Jensen's Alpha ratio of the active portfolio strategy using the Magic Formula, optimized using the Single Index Model, is significantly greater than the Jensen's Alpha ratio of the passive strategy.

In terms of research type, this study falls into the category of basic research because it tests, modifies, and develops theories and previous research. Based on its purpose, this research belongs to the category of conclusive descriptive research, which is used to create a picture or explain a situation objectively using numerical data, including data collection, interpretation, presentation, and results. In terms of approach, this research belongs to the category of quantitative research because it emphasizes analysis on numerical data processed using statistical methods.

RESULT AND DISCUSSION

No	Name	march 2013 - march 2014	march 2014 - march 2015	march 2015 - march 2016	march 2016 - march 2017	march 2017 - march 2018	march 2018 - march 2019	march 2019 - march 2020	march 2020 - march 2021	march 2021 - march 2022	march 2022 - march 2023	march 2023 - march 2024	TOTAL Geometrik	rata-rata Geometrik
1	Kompas100	95.37%	117.99%	86.22%	111.49%	109.98%	102.24%	66.66%	131.63%	109.85%	91.24%	101.97%	9.07%	0.79%
2	IHSG	96.50%	115.74%	87.80%	114.92%	111.15%	104.52%	70.17%	131.87%	118.14%	96.24%	106.72%	47.00%	3.56%
3	Inflation	107.32%	106.38%	104.45%	103.61%	103.40%	102.48%	102.96%	101.37%	102.64%	104.97%	103.05%	51.71%	3.86%
4	Equity Mutual Fund Index	95.34%	112.18%	89.20%	104.07%	106.48%	100.16%	60.44%	122.17%	109.67%	93.73%	97.32%	-21.78%	-2.21%
5	Magic Formula (Active)	106.66%	116.53%	83.16%	122.56%	95.87%	91.33%	57.34%	159.56%	113.27%	110.32%	113.11%	43.43%	3.33%
6	Magic Formula optimized using Single Index Model (Active)	108.74%	185.12%	102.85%	107.70%	115.09%	115.05%	62.68%	116.41%	117.85%	109.09%	114.47%	217.04%	11.06%
7	Naïve Strategy (Passive)	89.33%	96.68%	81.41%	132.28%	110.15%	95.70%	56.98%	150.94%	123.85%	115.44%	112.02%	35.04%	2.77%
8	Sun 10 year	105.75%	107.79%	107.81%	108.48%	107.48%	106.68%	107.82%	107.32%	106.79%	106.40%	107.07%	115.16%	7.21%

1. MAGIC FORMULA VS IHSG

Group Statistics

	Strategi	N	Mean	Std. Deviation	Std. Error Mean
Hasil Analisa	Magic Formula	132	.005011	.0674004	.0058665
	IHSG	132	.003599	.0364188	.0031698

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Analisa	Equal variances assumed	31,307	,000	,212	262	,832	.0014121	.0066681	-.0117177	.0145420
	Equal variances not assumed			,212	201,486	,832	.0014121	.0066681	-.0117360	.0145603

2. MAGIC FORMULA YANG SUDAH DIOPTIMALISASI VS IHSG

Group Statistics

	Strategi	N	Mean	Std. Deviation	Std. Error Mean
Hasil Analisa	Magic Formula yang di optimalisasi	132	.011489	.0738621	.0064289
	IHSG	132	.003599	.0364188	.0031698

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Analisa	Equal variances assumed	32,033	,000	1,101	262	,272	.0078902	.0071679	-.0062238	.0220041
	Equal variances not assumed			1,101	191,141	,272	.0078902	.0071679	-.0062481	.0220284

3. MAGIC FORMULA YANG SUDAH DIOPTIMALISASI (AKTIF STRATEGI) VS NAÏVE STRATEGI (PASSIVE STRATEGI)

Group Statistics

	Strategi	N	Mean	Std. Deviation	Std. Error Mean
Hasil Analisa	Magic Formula yang di optimalisasi	132	.011489	.0738621	.0064
	NAIVE STRATEGY (PASSIVE STRATEGY)	132	.004291	.0633580	.0055146

Double-click to activate

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Analisa	Equal variances assumed	1,208	,273	,850	262	,396	.0071985	.0084700	-.0094795	.0238765
	Equal variances not assumed			,850	256,068	,396	.0071985	.0084700	-.0094813	.0238783

4. MAGIC FORMULA YANG SUDAH DIOPTIMALISASI (SHARPE RATIO) VS NAÏVE STRATEGI (SHARPE RATIO)

Group Statistics

	Strategi	N	Mean	Std. Deviation	Std. Error Mean
Hasil Analisa	Magic Formula yang di optimalisasi / SHARPE RATIO	121	.329450	1.0201979	.0927453
	NAIVE STRATEGY / SHARPE RATIO	121	.119707	1.2015497	.1092318

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Analisa	Equal variances assumed	3,602	,059	1,464	240	,145	.2097430	.1432943	-.0725322	.4920182
	Equal variances not assumed			1,464	233,850	,145	.2097430	.1432943	-.0725698	.4920558

5. MAGIC FORMULA YANG SUDAH DIOPTIMALISASI (TREY-NOR RATIO) VS NAÏVE STRATEGI (TREYNOR RATIO)

Group Statistics

	Strategi	N	Mean	Std. Deviation	Std. Error Mean
Hasil Analisa	Magic Formula yang di optimalisasi / TREYNOR RATIO	121	.048960	.1791768	.0162888
	NAIVE STRATEGY / TREYNOR RATIO	121	.016496	.3204446	.0291313

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Analisa	Equal variances assumed	9,030	,003	,973	240	,332	.0324636	.0333760	-.0332837	.0982110
	Equal variances not assumed			,973	188,354	,332	.0324636	.0333760	-.0333752	.0983025

6. MAGIC FORMULA YANG SUDAH DIOPTIMALISASI (JENSEN ALPHA) VS NAÏVE STRATEGI (JENSEN ALPHA)

Group Statistics

	Strategi	N	Mean	Std. Deviation	Std. Error Mean
Hasil Analisa	Magic Formula yang di optimalisasi / JENSEN ALPHA	121	.097475	.1971009	.0179183
	NAIVE STRATEGY / JENSEN ALPHA	121	.036936	.1289543	.0117231

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Analisa	Equal variances assumed	10,776	,001	2,827	240	,005	.0605397	.0214125	.0183592	.1027201
	Equal variances not assumed			2,827	206,824	,005	.0605397	.0214125	.0183249	.1027544

CONCLUSION

From the results of the above research from March 2013 to March 2024, the measurement of total return shows greater results than the optimized Magic Formula method of 217.04%, higher than *the* original *Magic Formula return* of only 43.43% and passive strategy (Naïve strategy) of 35.04% and *return* JCI by 47%, but not significantly. as well as measurements based on the Sharpe ratio, and the Treynor ratio did not differ significantly, which differed significantly only from the Jensen Alpha measurement.

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