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RESEARCH ARTICLE

SMART BETA PORTFOLIO STRATEGY ON TECHNOLOGY AND FOOD STOCK IN SOUTH KOREA

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Abstract

This study discusses the performance of stocks of technology companies and food companies in South Korea in the period January 2019-November 2024 which are attractive to foreign investors due to their strategic position in the global economy. However, companies do not always show good performance. Therefore, a careful investment strategy is needed, including the preparation and management of portfolios. In compiling the portfolio, this study uses a smart beta strategy that has been proven to provide superior returns compared to traditional portfolios. Portfolio management involves two strategies, namely a passive approach and an active approach. This quantitative descriptive study uses open prices from stock data prices that form a portfolio based on selected betas. Weighting is adjusted for higher beta stocks in receiving a larger allocation in the portfolio. This study compares three beta groups (high, medium, and low) and two investment strategies (active and passive) using the Sharpe index.The results of this study indicate that the medium beta group and passive strategy have better performance with competitive return values without having to face too much risk. The passive strategy provides a balance between risk return and maintaining stability without dependence on market movements that tend to be volatile.

Introduction:-

The development of technology has brought significant impacts in the world of business and industry. With the adoption of automation and digitalization, production and operational processes become more efficient and faster, allowing companies to reduce costs while improving the quality of products and services. Yang & Gu (2021)states that technologies such as big data and the Internet of Things (IoT) also provide competitive advantages, by providing deep insights through more accurate data analysis. Through more accurate and real-time data analysis, companies can better understand market trends and respond to consumer needs more precisely.

Along with the importance of technology in supporting business decisions and industry transformation, several countries have positioned themselves as leaders in technology development. South Korea, for example, has successfully built a strong digital infrastructure to enhance global competitiveness. The country has a strong technology infrastructure, strong internet access rates, and a rapidly growing technology industry. South Korea was one of the first to commercially launch 5G networks, paving the way for technological developments in various fields (Massaro & Kim, 2022). This advanced technological infrastructure also supports a vibrant startup ecosystem, with many new companies emerging in the fields of AI, Fintech, and biotechnology. This has led to a national effort

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to adapt to the rapidly changing technological environment. In fact, 96% of the population in South Korea is connected to the internet, which is very high when compared to other countries where internet access is slower than in South Korea.

In addition, the food and beverage industry are one of the fastest growing sectors in South Korea, both for domestic needs and exports. One important factor driving this growth is the Korean Wave (Hallyu), which has introduced Korean pop culture, including cuisine, to a global audience. The Korean Wave is one of the phenomena where South Korean culture is spreading globally (Nobelis et al., 2024). With the gastrodiplomacy strategy, the South Korean government utilized the popularity of K-Pop and Korean dramas to promote traditional foods such as kimchi, tteokbokki, and ramyeon to the world. In addition, the emerging demand for healthy and halal-certified food products along with the increase in Muslim tourists has provided new opportunities for local food companies to innovate and expand. The sector also attracts investors due to its defensive nature despite the fluctuating economic situation.

Companies in the technology and food sectors in South Korea are showing strong growth potential, making them promising sectors for investors. On the one hand, technology companies continue to innovate with the development of digital products and services, while food companies continue to expand their markets both domestically and internationally. Both have attractive prospects for investors seeking portfolio diversification and long-term growth opportunities. With the increasing growth of the company, it becomes a value in itself to generate increased demand for the company's shares (Haryadi et al., 2024). Indirectly, investors' interest in investing will increase because they believe that they will get the expected return. This can be seen in the curve below

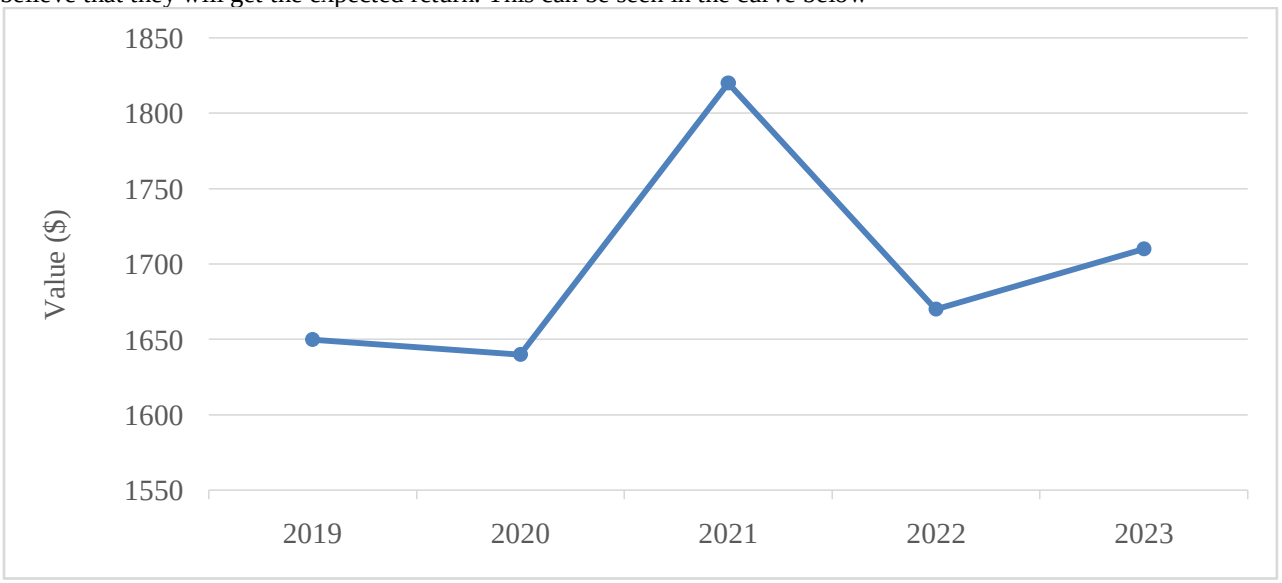

Figure 1:- South Korea Gross Domestic Product (GDP) Movement Curve.

Based on the curve in figure 1.1, South Korea is known for its strong economic stability with consistent GDP growth and a manageable inflation rate. In 2021, South Korea experienced a high post-economic recovery which resulted in surging exports and high demand for products. However, 2022 saw a high decline from 2021 due to geopolitical tensions, slowing the pace of economic growth. In 2023, South Korea bounced back to an increase. This shows the resilience of the South Korean economy that is affected by dynamic global conditions and reflects a strong financial system. Considering these data, investing in the technology sector and food sector in South Korea can offer attractive long-term profit opportunities for investors (Ha & Woo, 2022).

One of the information needed to analyze stocks is to measure the level of volatility of a stock. Stock volatility refers to the rapid and significant fluctuations or changes in the price of the stock within a certain period of time(Putra &Tumirin, 2024). Analyzing stock volatility is very important because volatility reflects the level of risk associated with an investment. Understanding portfolio volatility allows investors to better measure and manage investment risk. One of the tools used is beta analysis. Beta measures the sensitivity of a stock's return to changes in market

returns and provides insight into the relative volatility of a stock. By considering beta values, investors can create portfolios based on performance variables to reduce the risk associated with stock investment (Putri, 2023).

Smart beta is a data-driven investment strategy that involves risk-based analysis using transparency techniques and criteria based on specific factors or attributes that influence investment management (Putri, 2023). Smart beta strategies are increasingly popular among investors, according to a report (bsdinvesting, 2023) smart beta consistently represents 9% of total assets invested in equity index funds. Smart beta strategies will continue to be used as a complementary element in portfolio construction and as a means to increase portfolio returns through multifactor exposure.

The beta value of a stock allows smart beta to select the stock that best suits the investment objective and is most optimal. To know how much a stock contributes to the risk in a well-diversified portfolio, it is necessary to measure the stock's market risk and to understand how sensitive the stock is to market changes. In a smart beta strategy, low beta stocks are considered safer as they are less affected by market fluctuations. Low beta portfolios are less affected when stock movements decline, because they have a smaller stock volatility than the market and only experience a decline of less than 1% (Reskyana& M, 2022). Meanwhile, high beta stocks focus on growth, where smart beta offers greater profit potential because it is responsive to market fluctuations.

In addition, investors can perform both passive strategies and active strategies in the management of a portfolio that is expected to be efficient and optimized. The application of strategies in stocks of technology companies and food companies provides an interesting perspective on the maximum risk-adjusted return for suitable investments. Some researchers have tested both strategies to find out which strategy produces the best portfolio return. With different research years and research objects Salim & Rizal (2021), Waspada et al., (2021), and TitikKristanti et al., (2022) prove that active strategies provide better portfolio returns than passive strategies. Based on previous research, the author intends to conduct similar tests on the stock portfolios of South Korean food and technology companies in this study. The stock portfolio of the company will be given a comparison of two different investment strategies to show the selected strategy that can generate the best return.

The strategy measurement stage reviews portfolio performance and compares it with the performance of other portfolios through a benchmarking process (Adnyana, 2020). In the portfolio there are types of measurements used, namely the sharpe index, treynor index, and Jensen index (Sinaga et al., 2022). Researchers Octaviantoro (2024) and Adiyono et al., (2021)said that there was no significant difference between the three measurements. Meanwhile, researchers Sonia et al., (2023), Sinaga et al. (2022) and Salim & Rizal (2021)chose to use sharpe measurement for their portfolio performance.

This research selects technology companies and food companies listed on the KOSPI index and including liquid stocks so that they can provide the best portfolio between risk and return. Thus, the researcher aims to display the sensitivity of stocks on the KOSPI index through beta coefficient analysis and find the best way using the Sharpe index smart beta to form the best KOSPI index stock portfolio in South Korea. In addition, this research also seeks to identify strategies to improve the performance of these portfolios under various market conditions.

Literature Review:-

Investment

Investment or the term investment used in English can be interpreted as planting (Hendrawan et al., 2020). Investment is investing a number of funds used to achieve long-term goals and benefits (Inrawan, 2022). Paningrum (2022) states that investment is dividing funds or other resources today, aiming to get future profits. However, in order to get these benefits, it is important to protect the value of assets currently owned as well as the ability to meet future needs.Investment is used as spending or expenditures made by investors or production equipment to increase the production capacity of goods and services in the economy (Paningrum (2022: 1). Individuals use investment to maintain and multiply wealth by investing it in efficient government and business production. On the other hand, for companies, investment is an asset used to increase wealth through dividends, interest, and royalties.

With investments involving the collection of money or sums of money in the present is a strategic move to obtain future profits and benefits. This process is one of the important pillars in economic growth for both individuals and countries. Through wise and planned investment, it is expected to create sustainable prosperity and improve the

quality of life. It is important to understand the returns and risks on the investment to support long-term asset security. Thus, investment is not only a tool to achieve profits, but also a means to create economic stability.

Return and Risk

In making an investment, there are two things that must be understood, namely return and risk (Paningrum, 2022: 9). Expected return and actual return are two categories that form the basis for the division of return. Return refers to the rewards that will be obtained in the future (Hartono, 2022). Expected return is the amount of return or profit based on calculations and assumptions from historical stock data, which is predicted to be obtained in the future. Meanwhile, actual return is the return actually received by investors, which can be higher or lower.

Return or return is the profit desired by investors in return for delaying consumption in investment activities. Returns are obtained from two sources, namely dividends and capital gains (Adnyana, 2020). Dividends are company profits given to investors in the form of new shares, which can increase the share price owned by investors (Adnyana, 2020: 34). Capital Gain is the profit obtained by investors for investing in a company, this is stated if the share price is higher than the actual share price (Hartono, 2022: 447). Return can be known by using the following equation:

$$R_i = \frac{(P_t - P_{t-1})}{P_{t-1}}$$

R_i = stock return
P_{t-1} = market price at the beginning of the period
P_t = market price at the end of the period

Risk is the non-achievement of expected profits due to uncertainty that occurs from time to time (Adnyana, 2020: 2). Risk consists of two types, namely systematic risk and unsystematic risk (Paningrum, 2022).Systematic risk is a risk that cannot be diversified and is influenced by changes that occur outside the company such as stock exchange rates, government policies, and tax rates. Meanwhile, non-systematic risk can be minimized through diversification, which has an impact on changes in organizational structure and management (Adnyana, 2020: 52). To calculate risk or risk can be done by formula:

$$\sigma_{ei^2} = \sigma_{i^2} - \beta_{i^2} . \sigma_{m^2}$$

σ_{ei^2} = unsystematic variance
σ_{i^2} = stock variance
β_{i^2} = beta squared of the stock
σ_{m^2} = market variance

Risk can be measured using standard deviation, which shows how much the actual return differs from the expected average return. Therefore, stock risk can be calculated using the following formula (Hartono, 2022):

$$\sigma_i = \sqrt{\sum_{j=1}^{n} \left(R_i - E(R_i)\right)^2}$$

σ_i = standard deviation of stock i (risk)
R_{ij} = stock investment return i on condition j
$E(R_i)$ = expected return of stock i
N = total return

Beta

Beta (β, market beta, beta coefficient) is the risk taken when stock prices go up and down, as well as the hedge ratio of the investment (Inrawan, 2022: 134). Beta portfolios are used to measure the volatility of stock and portfolio returns, because volatility is the fluctuation of stock or portfolio returns over a certain period of time (Hartono, 2022). Therefore, portfolio beta measures stock or portfolio returns against market returns by adjusting for fluctuations or volatility of stocks against the market.

Volatility is measured using covariance and covariance is associated with market risk, then the result is a beta coefficient value that shows the level of risk of stock i compared to the overall market risk (Hartono, 2022). Beta measurement uses the equation:

$$\beta_i = \frac{\sigma_{i,M}}{\sigma^2}$$

β_i = beta
σ_i = covariance of return between stock i and the market
σ^2 = market return variance

The market beta coefficient must be 1 (Adnyana, 2020: 139). If an asset has a beta coefficient of 1, it means that changes in the value of the asset will be in line with changes in market value. If the beta of an asset is greater than 1, this indicates that the asset has a higher systematic risk than the market, which means that the asset is more volatile and changes faster than the entire market portfolio (Hartono, 2022).

Beta measurement is used to assess securities or stocks in investment. By knowing the beta value, investors can determine whether the stock is classified as defensive or aggressive (Budiarti et al., 2021)Defensive stocks have a beta below 1, so they are less affected by market price fluctuations. In contrast, aggressive stocks have a beta above 1, which means they are more volatile to changes in market prices. Calculating beta helps investors in constructing a portfolio by considering risk and adjusted return.

Smart Beta

Smart beta is an investment strategy that aims to optimize risk and return in a portfolio. It operates by improving the performance of stocks in a portfolio based on factors such as value, company size, growth characteristics, momentum, financial performance, and volatility levels (Raza & Ashraf, 2019,Sivaramakrishnan, 2021). Smart beta was first introduced by Robert Arnott of Research Affiliates in 2005. This strategy is usually applied in ETF products to manage funds effectively, with the aim of forming a strong portfolio to maximize returns. According to Arnott, smart beta aims to find the best method of determining factors that have a significant impact on increasing stock returns.

Smart beta improves upon the traditional capital weighted index, where each stock is weighted in the index calculation based on its market capitalization value(Arnott &Sherrerd, 2022). This indexing gives more weight to overvalued stocks, i.e. stocks with market capitalizations that cause some stocks to be over-valued in the calculation. This imperfection in market capitalization weighting can lead to a decline in the intrinsic performance of stocks. Smart beta refines the market capitalization-based strategy by not using the stock price as the basis for its weights. It emphasizes other factors, such as value and momentum, which have a significant effect on stock performance (Arnott &Sherrerd, 2022). Researcher Salim et al., (2024) stated the weighting equation using the capital weight method, where the higher the beta value of the stock, the higher the weight of the stock in the portfolio. This equation is as follows:

$$W_i = \frac{\beta_i}{\sum \beta_p}$$

β_i = beta value of the stock
$\sum \beta_p$ = total beta in the portfolio

Investment Portfolio

In investment, portfolios are interesting to discuss because they are useful for diversifying the level of risk arising from different types of investments (Kristanti et al., 2022). Portfolio diversification means forming a portfolio in a way that allows a reduction in risk without having to sacrifice the potential returns earned. Therefore, the main principle of portfolio diversification is that all funds should not be invested in only one company, but should be allocated to shares of various different companies (Adnyana, 2020: 47). Instruments in a portfolio can be of the same or different types, such as stocks, bonds, and warrants.Portfolio investments generally aim for the short term, use more liquid funds and do not involve investors in the management of the company. Investments consisting of various stocks of different companies are called stock portfolios, with the hope that fluctuations between stocks can offset each other to reduce risk.

The main focus in portfolio formation is the balance between the level of return and risk that can be accepted. This portfolio is called an efficient portfolio, which is a portfolio that is able to provide the highest return for a certain level of risk for investors who have the courage to take risks (risk takers), or that provides the lowest risk for the highest return for investors who choose to minimize risk (risk averse) (Tandelilin, 2017). However, the investor's choice is not an efficient portfolio, but an optimal portfolio based on investor preferences for return and risk (Adnyana, 2020: 38).In the portfolio, there is a weight distribution where investors can determine the proportion of each instrument. Thus, the estimated portfolio return can be calculated using the following equation.

$$R_p = \sum(W_i \, . \, R_i)$$

R_p = expected return in portfolio return
W_i = proportion of asset i in the portfolio
R_i = expected return on asset

As for calculating the Beta portfolio, the equation used is similar to the equation for calculating the portfolio return. The beta portfolio equation:

$$\beta_p = \sum(W_i \, . \, \beta_i)$$

β_p = beta portfolio
W_i = proportion of asset i in the portfolio
β_i = beta asset

Investment Portfolio Strategy

An investment portfolio strategy is a method used to design and manage an investment portfolio. The goal is to optimize profits and reduce risks, especially in investment decisions, business decisions, and implementation of portfolio strategies (Paningrum, 2022: 38) explains that there are two strategies that can be chosen, namely active portfolio strategies and passive portfolio strategies. Each strategy has different goals and methods.

The passive portfolio strategy involves investing in a portfolio that follows the performance movements of the market index. This strategy assumes that all existing information is already reflected in stock prices and absorbed by the market, so investors do not need to look for abnormal returns (Paningrum, 2022: 38). In a passive portfolio strategy, investors rely on stock movements based on changes in market indices. The main purpose of passive strategies is to monitor market performance (Tandelilin, 2017). Examples of passive portfolio strategies include the buy and hold strategy and the indexing strategy (Sari et al., 2023).

Active portfolio strategy involves investors using up-to-date information and active portfolio management techniques to create optimal portfolio combinations through technical and fundamental analysis (Paningrum, 2022: 38). The goal is to achieve a return that exceeds the passive portfolio return. In passive strategies, three activities are carried out, namely stock selection, sector rotation, and momentum strategies (Nurtjahjani et al., 2024).

1. Stock selection. Investors actively seek information on stocks to invest in their portfolios, which produce the best returns and low risk.
2. Sector rotation. Rotation is changing the proportion or load of stocks, so investors are active in changing portfolio formation according to the economic conditions of the stock.
3. Momentum strategy. Momentum is the time or opportunity for investors to sell or buy shares.

Portfolio Performance Measurement

Portfolio performance measurement is a measure and comparison with other portfolio performance through the benchmarking process (Adnyana, 2020: 175). This measurement aims to assess how well the portfolio has been formed by using other portfolios as a reference or benchmark.

There are several methods to measure portfolio performance, such as Time-Weighted Rate of Return (TWR) and Dollar Weighted Rate of Return (DWR) for simple measurement. The choice of method depends on the purpose of the measurement. In addition, there is a more appropriate method, which is the measurement of risk-adjusted performance, which takes into account both return and risk, namely risk adjusted performance. Some measures in this category include the Sharpe index, Treynor index, and Jensen index. This research will use the Sharpe index as a performance measurement tool.

The Sharpe Index developed by William Sharpe is based on the calculation of the capital market line concept, the division between the portfolio risk premium and the standard deviation. The equation used is formulated as follows (Adnyana, 2020: 179).

$$S_p = \frac{(R_p - R_f)}{\sigma_p}$$

S_p = sharpe index
R_p = average portfolio return p
R_f = average risk-free rate of return
σ_p = standard deviation of portfolio return

Research Framework

Based on theory and previous research on return, stock beta, smart beta, portfolio, and investment strategy, this study begins by collecting stock price data from 27 stocks of technology companies and food companies listed on the KOSPI index during the period 2019 to 2024. The data is used to calculate the return and beta coefficient of each stock. After that, the stocks are grouped based on the beta coefficient into low beta, medium beta and high beta stocks. The three groups of stocks are then compared based on returns to answer the main research question, namely whether high beta stocks provide better returns than medium beta and low beta stocks in the best stock portfolio in KOSPI.

The research continued by forming portfolios based on the group of stocks with beta that showed better returns. Weighting is done based on the beta coefficient of the stocks. Then, the portfolio is given two strategies, namely a passive strategy with an unchanged portfolio composition and an active strategy where the portfolio composition changes every 3 months. These two strategies are applied to determine the investment strategy that provides the best return at a certain level of risk. The performance of active and passive strategy portfolios is tested using the Sharpe ratio. The portfolio with the highest Sharpe ratio is considered the best portfolio. The framework of this research is organized as follows:

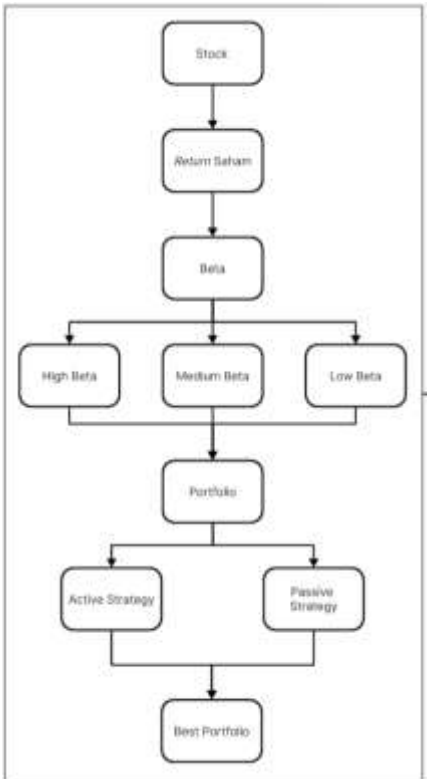

Figure 2:- Framework.

Result:-

The portfolio consists of the best beta group stocks based on the Sharpe index. A total of 27 stocks are grouped based on the beta coefficient. Based on the calculation results, it is concluded that in this study there are 9 stocks in the high beta stock group, 9 stocks in the medium beta group, and 9 stocks in the low beta group. The calculation data is shown below:

Table 1:- Beta Group Classification of Stocks.

RANKING	STOCK	BETA	GROUP
1	Samsung Electronics	1,07758	HIGH
2	LG Electronics	1,01915	HIGH
3	Inscobee	0,95087	HIGH
4	Samyang Corp.	0,83499	HIGH
5	CJ Cheiljedang	0,79387	HIGH
6	Hyosung Corp.	0,77513	HIGH
7	Dayou Plus	0,77036	HIGH
8	Haitai Confectionery and Food Co	0,74391	HIGH
9	Pulmuone Corp.	0,73149	HIGH
10	CJ Seafood Corp.	0,71835	MEDIUM
11	Sempio Foods Company	0,70728	MEDIUM
12	Daesang Corp.	0,65864	MEDIUM
13	SPC Samlip Co.	0,63533	MEDIUM
14	Seoul Food Industrial	0,62479	MEDIUM
15	Samyang Food Co.	0,61166	MEDIUM
16	Orion Corp.	0,58319	MEDIUM
17	Dongwon F&B Co.	0,53286	MEDIUM
18	LG Uplus	0,52008	MEDIUM
19	KT Corp.	0,49167	LOW
20	Huneed Technologies	0,48496	LOW
21	Lotte Confectionery Co.	0,48101	LOW
22	Ottogi Corp.	0,46455	LOW
23	SK Telecom	0,45497	LOW
24	Nongshim Co.	0,26437	LOW
25	Choheung Corp.	0,26058	LOW
26	Hyundai Futurenet	0,22377	LOW
27	Daidong Electronics	0,02616	LOW

Table 1 is a classification of high beta, medium beta, and low beta stock groups on the stock performance of South Korean technology companies and food companies for the period January 2019-November 2024. The majority of stocks have positive values, which indicates stable conditions in overall stocks and market conditions. In this study, there are 9 stocks included in the high beta group, namely Samsung Electronics, LG Electronics, Inscobee, Samyang Corp., CJ Cheiljedang, Hyosung Corp., Dayou Plus., Haitai Confectionery and Food, and Pulmuone Corp. with the highest beta value of 1.07758 and the lowest beta of 0.73149 while the medium beta group consists of 9 stocks, namely CJ Seafood Corp., Sempio Food Company, Daesang Corp., SPC Samlip Co., Seoul Food Industrial, Samyang Food Co., Orion Corp., Dongwon F&B Co., and LG Uplus with the largest beta value of 0.71835 While the low beta group consists of 9 stocks including KT Corp., Huneed Technologies, Lotte Confectionery Co., Ottogi Corp., SK Telecom, Nongshim Co., Choheung Corp., Hyundai Futurenet, and Daidong Electronics with the largest beta value of 0.49167. The portfolio formation process involves selecting the best beta stock group using the Sharpe index as the basis for decision-making, as follows:

Table 2:- Sharpe Performance Evaluation.

GROUP	SHARPE INDEX
HIGH BETA	0,0050006
MEDIUM BETA	0,0085333

LOW BETA	0,0043562
MARKET (KOSPI)	0,0000020

Table 2 shows that the Sharpe index values of high beta, medium beta, and low beta are higher than the market Sharpe index (KOSPI) as shown in the positive Sharpe index values for all three groups. However, stocks with medium beta have the highest Sharpe index value, followed by high beta and low beta. This indicates that medium beta stocks provide an optimal balance between risk and return, so they are more efficient in generating returns than high beta and low beta. Based on the Sharpe index calculation that has been carried out, the medium beta stock group is better than the high beta and low beta stock groups because the Sharpe index value of the medium beta group, which is 0.0085, is greater than the Sharpe index value of the high beta group, which is 0.0050 and low beta, which is 0.0043.

In this study, there are two types of investment strategies applied to the same portfolio, namely active strategy and passive strategy. The aim is to compare the two investment strategies and find out the type of strategy that can provide the best return on the portfolio of technology company stocks and South Korean food company stocks to make it the best portfolio.

The active strategy in this study uses a periodic adjustment technique, where the portfolio composition changes each research period, namely January-June 2019, July-December 2019, January-June 2020, July-December 2020, January-June 2021, July-December 2021, January-June 2022, July-December 2022, January-June 2023, July-December 2023, January-June 2024, July-November 2024. While the passive strategy in this study uses the buy-and-hold technique so that there is no change in the portfolio composition during the research period January 2019-November 2024. The return results can be seen below:

Table 3:- Return Portfolio.

Period	**Active**			**Passive**			**KOSPI**
	High	**Medium**	**Low**	**High**	**Medium**	**Low**	
Jan-Jun 2019	0,06806	0,11753	0,02894				0,00051
Jul-Des 2019	-0,05449	-0,01470	-0,11634				0,00028
Jan-Jun 2020	0,01815	0,02010	0,20017				-0,00008
Jul-Des 2020	0,26800	0,04722	0,14725				0,00254
Jan-Jun 2021	0,27911	0,23174	0,09678				0,00118
Jul-Des 2021	-0,07709	-0,12662	-0,05773				-0,00078
Jan-Jun 2022	-0,21401	-0,15758	-0,09854	0,26447	0,39268	0,21622	-0,00194
Jul-Des 2022	-0,12888	-0,05498	0,18000				-0,00027
Jan-Jun 2023	0,17502	-0,08517	-0,10259				0,00115
Jul-Des 2023	-0,05627	0,03958	-0,39706				0,00034
Jan-Jun 2024	0,17990	0,18340	0,15331				0,00048
Jul-Nov 2024	-0,22694	-0,14948	0,00546				-0,00112
Total	0,23054	0,05105	0,03966				0,00230
Accumulation	**11%**			**29%**			**0%**

From the calculation above, it is known that the portfolio return rate using a passive strategy can beat the return rate of the active strategy and the overall market. The active strategy can provide a return of 29%, while for the active strategy it is 11%. This indicates that the passive strategy is a better strategy to be carried out on the portfolio of South Korean technology and food companies for the period January 2019-November 2024.

Portfolio returns with a passive strategy can be interpreted that an approach that relies on purchasing and storing assets in the long term without making frequent transactions is more effective for this sector. Passive strategies are able to take advantage of long-term market stability, reduce transaction costs, and avoid the risk of suboptimal

decision-making due to short-term market volatility. In contrast, active strategies focus on outperforming the market with more flexible portfolio management and often face challenges in the form of significant fluctuations in returns. So that in the end it can produce a lower rate of return. That way, investors who want to invest in the South Korean technology and food sectors for the period January 2019-November 2024 should choose a passive strategy approach because it is more effective in providing better performance and can maximize the desired results.

Discussion:-

The results of the study successfully identified the optimal portfolio compilation for stocks of South Korean technology companies and food companies, emphasizing the advantages of the medium-beta stock group — namely stocks with a beta value around 1. The preference for medium-beta stocks is based on the balance between moderate sensitivity to market fluctuations and stability of price movements, which overall reflects the potential for optimal returns with controlled risk. This finding is in line with previous studies byHwang et al., (2021)andFarooq et al., (2021), which also showed that medium-beta stocks can provide more stable and sustainable returns compared to high or low beta stocks.

However, the results of this study differ from the conclusions drawn by several other researchers, includingShen et al., (2021),Rizki, et al., (2024), Salim, et al., (2024), andWaspada et al., (2021)who each showed a preference for high or low beta stocks in portfolio composition. The findings supporting medium beta stocks indicate that stocks in this category can provide more balanced returns and more manageable risks compared to other alternatives. The differences in research results confirm that market dynamics, economic conditions, and research time frames greatly affect the performance of various types of stocks. Thus, medium beta stocks can be an ideal portfolio component, especially in market conditions that require a balance between risk and consistent returns.

To optimize returns from a portfolio consisting of medium beta stocks, the choice of an appropriate investment strategy plays an important role. The test results show that passive investment strategies are proven to be more effective than active investment strategies in improving portfolio performance. Passive strategies that focus on approaches such as buy and hold, indexing, offer long-term stability, lower transaction costs, and controlled risk management. These advantages are in line with the stable yet dynamic nature of medium beta stocks, creating a portfolio that is balanced between risk and return.This study supports the findings of previous studies conducted byHendrawan et al., (2020),Fu et al., (2021), andMarkov & Markov, (2023)concluding that passive strategies provide more consistent and superior results compared to active strategies. However, these findings differ from other studies conducted bySalim & Rizal (2021), Waspada et al., (2020), andKristanti et al., (2022)which show that active strategies can provide higher returns.

The differences in the results of this study provide complexity in investment, where the effectiveness of active or passive strategies depends on the characteristics of the stock and certain market conditions. This study confirms that for medium beta stocks with a passive strategy is the optimal approach in building an investment portfolio, especially in market conditions that require stability and continuous risk management.

Conclusion:-

The research conducted from January 2019 to November 2024 highlights the performance of technology companies and food companies in South Korea, with the main finding that the medium beta stock group performed best in forming an investment portfolio. Stocks with medium beta show relative stability that remains dynamic against the market, creating an ideal balance between risk and return. This finding indicates that medium beta stocks are able to provide optimal returns with more controlled risk. In addition, this study revealed that a passive investment strategy produced better performance in managing portfolios in the technology and food sectors during the period. The stability of the passive strategy, supported by controlled risk and consistent company growth patterns, provides long-term benefits for investors. With this approach, the portfolio can maintain its stability despite market volatility. This finding provides important insights for investors in determining an efficient portfolio management strategy and maximizing recovery in dynamic market conditions.

References:-

1. Adiyono, M., Suryaputri, R. V., Efan, E., & Kumala, H. (2021). ANALISIS ALTERNATIF PILIHAN INVESTASI PADA ERA DIGITALISASI. JurnalAkuntansiTrisakti, 8(2), 227–248. https://doi.org/10.25105/jat.v8i2.9678

2. Adnyana, I. M. (2020). ManajemenInvestasi dan Portofolio.
3. Arnott, R., &Sherrerd, K. (2022). Jack Bogle and Smart Beta: Disruption in the Investment Management Industry. The Journal of Beta Investment Strategies, 13(1), 28–37. https://doi.org/10.3905/jbis.2022.13.1.028
4. Farooq, U., Nasir, A., Bilal, &Quddoos, M. U. (2021). The impact of COVID-19 pandemic on abnormal returns of insurance firms: a cross-country evidence. Applied Economics, 53(31), 3658–3678. https://doi.org/10.1080/00036846.2021.1884839
5. Fitrizal Salim, D., Iradianty, A., TitikKristanti, F., &Candraningtias, W. (2022). Smart beta portfolio investment strategy during the COVID-19 pandemic in Indonesia. Investment Management and Financial Innovations, 19(3), 302–311. https://doi.org/10.21511/imfi.19(3).2022.25
6. Fu, L., Pan, L., & Wu, F. (2021). Does passive investment have a positive governance effect? Evidence from index funds ownership and corporate innovation. International Review of Economics & Finance, 75, 524–545. https://doi.org/10.1016/j.iref.2021.04.025
7. Ha, Y.-K., & Woo, S.-H. (2022). Transportation Infrastructure or Economic Power? Development of the Automobile Industry in the United States. Sustainability, 14(3), 1649. https://doi.org/10.3390/su14031649
8. Hartono, J. (2022). Portofolio dan AnalisisInvestasi (1st ed.). CV Andi Offset.
9. Haryadi, D., Leon, H., & Ricky. (2024). PerananProfitabilitasSebagaiMediasi Dalam MengukurUkuran Perusahaan Dan RasioPertumbuhanTerhadap Nilai Perusahaan Transportasi Dan LogistikDi Bursa Efek Indonesia. JurnalEkuilnomi, 6(2), 201–213.
10. Hendrawan, R., Fadhyla, N. R., & Aminah, W. (2020). Portfolio selection and performance using active and passive strategies (Assessing SRI-KEHATI index in 2013-2018). JurnalSiasatBisnis, 24(2), 199–212. https://doi.org/10.20885/jsb.vol24.iss2.art9
11. Hwang, S., Rubesam, A., & Salmon, M. (2021). Beta herding through overconfidence: A behavioral explanation of the low-beta anomaly. Journal of International Money and Finance, 111, 102318. https://doi.org/10.1016/j.jimonfin.2020.102318
12. Inrawan, A. (2022). Portofolio dan Investasi.
13. Kristanti, F. T., Salim, D. F., Indrasari, A., &Aripin, Z. (2022). A stock portfolio strategy in the midst of the COVID-19: Case of Indonesia. Journal of Eastern European and Central Asian Research (JEECAR), 9(3), 422–431. https://doi.org/10.15549/jeecar.v9i3.822
14. Markov, M., & Markov, V. (2023). The Impact of Big Winners on Passive and Active Equity Investment Strategies. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.4339016
15. Massaro, M., & Kim, S. (2022). Why is South Korea at the forefront of 5G? Insights from technology systems theory. Telecommunications Policy, 46(5), 102290. https://doi.org/10.1016/j.telpol.2021.102290
16. Mulya Arga Retha, H., & Budiarti, R. (2021). PENGARUH BETA TERHADAP RETURN SAHAM DEFENSIF DAN AGRESIF GUNA MEMBANTU INVESTOR DALAM KEPUTUSAN INVESTASI. GREENOMIKA, 3(2), 49–55. https://doi.org/10.55732/unu.gnk.2021.03.2.1
17. Nobelis, M. K., De Fretes, C. H. J., &Hergianasari, P. (2024). Soft Power Diplomacy Korea Selatan Terhadap Indonesia MelaluiGastrodiplomasiTahun 2019-2022. Administraus, 8(2), 69–79. https://doi.org/10.56662/administraus.v8i2.221
18. Nurtjahjani, F., Nurdahlia, D. U., Muthmainnah, Sumarni, Mintardjo, C. M. O., Haji, S. A., &Hamiddin, Muh. I. N. (2024). Analisis Strategi Optimalisasi Saham LQ 45 pada Bursa Efek Indonesia Tahun 2019. Jurnal Riset Bisnis, Manajemen, Dan Ilmu Ekonomi, 1(1), 32–39.
19. OCTAVIANTORO, T. N. (2024). ANALISIS KINERJA PORTOFOLIO SAHAM DENGAN MENGGUNAKAN METODE SHARPE, TREYNOR, DAN JENSEN (STUDI KASUS PADA INDEKS IDX80 DI BURSA EFEK INDONESIA TAHUN 2021-2023). Universitas Siliwangi.
20. Paningrum, D. (2022). BukuReferensiInvestasi Pasar Modal.
21. Putra, S. D. P., &Tumirin, T. (2024). PENGARUH PROFITABILITAS, LEVERAGE, VOLUME PERDAGANGAN SAHAM TERHADAP VOLATILITAS HARGA SAHAM. Journal of Economic, Bussines and Accounting (COSTING), 7(5), 3315–3324. https://doi.org/10.31539/costing.v7i5.12226
22. Putri, H. T. (2023). Model Smart Beta dalam Menyusun Portofolio Optimal a Literature Review. JurnalIlmiah Universitas Batanghari Jambi, 23(2), 2453. https://doi.org/10.33087/jiubj.v23i2.3884
23. Raza, M. W., & Ashraf, D. (2019). Does the application of smart beta strategies enhance portfolio performance? The case of Islamic equity investments. International Review of Economics & Finance, 60, 46–61. https://doi.org/10.1016/j.iref.2018.12.001
24. Reskyana, N., & M, J. H. (2022). EstimasiPortofolio Beta Rendah pada Saham-Saham LQ45. Doctoral Dissertation.

25. Salim, D. F., Aulia, A., Beshr, B. A. H., & Riyadh, H. A. (2024). Portfolio Design Beta, Alpha, Variance on Inconsistent Stocks in Indonesia LQ45 Index. Journal of Ecohumanism, 3(3), 1042–1056. https://doi.org/10.62754/joe.v3i3.3410
26. Salim, D. F., Kristanti, F. T., Rizki, I. A., & Fariska, P. (2024). Portfolio Design of Smart Beta and Smart Alpha in The Indonesian Stock Market. Journal of Ecohumanism, 3(6), 457–469. https://doi.org/10.62754/joe.v3i6.4019
27. Salim, D. F., & Rizal, N. A. (2021). Portofolio optimal Beta dan Alpha. Jurnal Riset Akuntansi Dan Keuangan, 9(1), 181–192.
28. Salim, D. F., Rizki, I. A., & Rizal, N. A. (2024). Performance Evaluation of State-Owned Company Stocks in Indonesia. International Journal of Finance & Banking Studies (2147-4486), 12(4), 14–26. https://doi.org/10.20525/ijfbs.v12i4.3157
29. Sari, A. K., Bianca, S. L., Permata Dinda, B. A., & R. Pandin, M. Y. (2023). Strategi Optimalisasi Saham - Saham DenganPendekatan Metode Indeks Tunggal Pada Perusahaan Tambang yang Terdaftardalam LQ45 di BEI Periode 2020 – 2022. Bisman (Bisnis Dan Manajemen): The Journal of Business and Management, 6(3), 592–610. https://doi.org/10.36815/bisman.v6i3.2958
30. Shen, J., Hui, E. C. M., & Fan, K. (2021). The Beta Anomaly in the REIT Market. The Journal of Real Estate Finance and Economics, 63(3), 414–436. https://doi.org/10.1007/s11146-020-09784-3
31. Sinaga, M. H., Tarigan, W. J., &Saragih, M. (2022). Pengukuran Kinerja PortofolioInvestasiDenganMenggunakanIndeks Sharpe Pada Emiten Sektor Transportasi Dan Logistik Yang TerdaftarDi Bursa Efek Indonesia Sebelum Dan Selama Masa Pandemic Covid - 19. Owner, 6(4), 3541–3552. https://doi.org/10.33395/owner.v6i4.1200
32. Sivaramakrishnan, K. K. (2021). Tax Management for Smart-Beta Indices.
33. Sonia, L., Purbayati, R., Mayasari, I., &Djatnika, D. (2023). Pengukuran Kinerja Reksa Dana Syariah CampuranDengan Metode Sharpe Ratio dan M2 Measure. Journal of Applied Islamic Economics and Finance, 4(1), 51–61.
34. Tandelilin, E. (2017). Pasar Modal ManajemenPortofolio&Investasi.
35. Waspada, I. P., Salim, D. F., & Fariska, P. (2021). An Application of the Smart Beta Portfolio Model: An Empirical Study in Indonesia Stock Exchange. The Journal of Asian Finance, Economics and Business, 8(9), 45–52.
36. Yang, F., & Gu, S. (2021). Industry 4.0, a revolution that requires technology and national strategies. Complex & Intelligent Systems, 7(3), 1311–1325. https://doi.org/10.1007/s40747-020-00267-9.