

**DO IDX30 INVESTMENT STOCKS OFFER OPTIMAL RISK–RETURN TRADEOFFS? A POST-COVID STUDY****KENNETH PINANDHITO<sup>1</sup>, NGUYEN THI KIM LIEN<sup>2</sup>, DINA YENI MARTIA<sup>3</sup>, ALVIANITA GUNAWAN PUTRI<sup>4</sup>, JUNAEDI ADI PRASETYO<sup>5</sup>****AFFILIATIONS**<sup>1</sup>Managerial ccounting, Politeknik Negeri Semarang, Indonesia<sup>2</sup>Industrial Management, Asia Eastern University of Science and Technology, Taiwan<sup>3</sup>Financial Analyst , Politeknik Negeri Semarang, Indonesia<sup>4</sup>Managerial ccounting, Politeknik Negeri Semarang, Indonesia<sup>5</sup> Business and Informatics, Politeknik Negeri Banyuwangi, Indonesia

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**Abstract:** This study aims to analyze the formation of an optimal portfolio of stocks based on the Markowitz model in IDX Quality30 companies post covid from January 2021 to December 2022. The secondary data used are daily closing stock prices. The samples in this study were 19 companies. The analysis results show that ten stocks are optimal portfolio candidates: ASII, BBCA, BMRI, ITMG, KLBF, MIKA, PTBA, SIDO, TLKM, and UNTR. The optimal portfolio formation of the Markowitz model consists of 10 issuers with proportions, namely SIDO 30.81%, TLKM 15.61%, MIKA 12.09%, KLBF 11.90%, BBCA 8.64%, ASII 7.39%, PTBA 5.35%, UNTR 3.73%, ITMG 3.53%, BMRI 0.94%. The proportion of funds generated can provide an expected return value of 0.047% with a risk level (standard deviation) of 0.885%.

**Keywords:** IDX Quality 30 Index; Markowitz model; Optimal Portofolio

**INTRODUCTION**

The development of the Indonesian economy cannot be separated from the role of the capital market, which is organized on the Indonesian Stock Exchange. The capital market becomes a mediator that allows parties who want to expand in business development to meet with investors as parties who want the circulation of their funds by expecting a rate of return on the funds they invest. Investment is an investment of some funds or other resources made at this time, intending to obtain profits in the future (Eduardus, 2017).

As an investor, the main principle that must be remembered in investing is that high returns will also provide a high level of risk and vice versa. Moreover, stock investment is an investment with a relatively high level of risk. The high risk of investing in shares occurs when all the capital is invested in one share, so the risk of loss cannot be avoided. For this reason, it is necessary to diversify (by forming an optimal stock portfolio) so that in making investments, investors can invest their funds in many shares so that if there is a loss on one share, the profits on other shares can cover it. Diversification aims to minimize the unsystematic risk level or cannot be eliminated (Khudin Anam et al., 2021).

The model that focuses on the relationship between return and investment risk in determining a portfolio is the Markowitz model. Harry Markowitz proposed this model. His theory is straightforward: don't put all your eggs in one basket (Markowitz, 1952). This theoretical concept is known as investment diversification or making investments not centered on just one area and not carried out in one direction. In the Markowitz model, investors are taught to invest their funds differently (Markowitz, 1952). This aims to minimize the investment risk that will arise in the future.

The efficient portfolio that Markowitz means is looking at the highest level of return that can be returned. The level of ability that can be returned is what Markowitz calls expected

return. The expected return can be increased and focused when an investor chooses based on the expected profit level and appropriately looks at the portfolio risk. The portfolio that is managed most optimally is the portfolio that is considered the best, according to Markowitz. In carrying out this optimization, it is necessary to calculate each trade-off between return and risk that will be generated. An index is needed as an indicator to observe the price movements of securities.

The Indonesian Stock Exchange has several indices with their respective characteristics and can be an investment vehicle for investors. IDX Quality 30, as one of the indices launched by BEI, is an index consisting of 30 shares based on high profitability, good solvency, and stable profit growth with transaction liquidity and sound financial performance (idx.co.id, 2021). Apart from supporting the development of investment products in the capital market, IDX Quality 30 was launched as an alternative for investors in investing in shares by looking at good quality and more stable growth potential. IDX Quality 30 shares were launched on August 10, 2020. The Indonesian Stock Exchange conducts periodic reviews of shares listed on IDX Quality 30 every six months, with the details being that principal evaluations are carried out in January and July and minor evaluations in April and October). The IDX Quality 30 Index includes 30 stocks from various industrial sectors. Thus, investors can get better diversification in their portfolio by having stocks from various sectors.

## **LITERATURE REVIEW**

### **Modern Portfolio Theory and the Markowitz Mean-Variance Framework**

The theoretical foundation of this study rests on Modern Portfolio Theory (MPT), first introduced by Markowitz (1952), who demonstrated that the variance of portfolio returns is the appropriate measure of investment risk and that diversification across imperfectly correlated assets can reduce total portfolio risk below the weighted average of individual asset risks. The mean-variance model posits that rational, risk-averse investors seek to maximise expected return for a given level of risk, or equivalently, minimise risk for a given expected return, a principle formalised as the efficient frontier.

Subsequent scholarship has both validated and challenged the universality of the Markowitz framework across different market conditions. Alghifari et al. (2023) applied both the Markowitz model and the Single Index Model to stocks in the IDX ESG Leaders Index during the 2020–2022 period and found that the Markowitz model consistently outperformed the Single Index Model across three performance benchmarks, the Sharpe Index, Treynor Index, and Jensen Index, generating a portfolio return of 0.0661% with a risk of only 0.0121%. This finding reinforces the durability of the mean-variance framework even in emerging market contexts characterised by structural volatility. Similarly, Martia et al. (2025) applied the Markowitz model to IDX ESG Leaders stocks and derived an optimal nine-stock portfolio, comprising ASII, BMRI, BRPT, CTRA, ICBP, POWR, PRDA, RAJA, and SMSM, that produced an expected return of 0.06% at a portfolio risk of 0.68%, demonstrating the model's capacity to achieve risk minimisation through diversification even within a concentrated index.

### **Single Index Model and Comparative Portfolio Approaches**

Sharpe (1963) developed the Single Index Model (SIM) as a computationally simpler alternative to the Markowitz covariance matrix approach, relating each security's return to a common market index through a linear regression model:  $R_i = \alpha_i + \beta_i R_m + e_i$ , where  $\beta_i$  measures the sensitivity of stock  $i$  to market movements and  $e_i$  is the unsystematic residual. The SIM identifies optimal portfolio candidates using the Excess Return to Beta (ERB) ratio and a cut-off point  $C^*$ , including only stocks whose ERB exceeds  $C^*$ . Despite its analytical simplicity, the SIM has been found to yield suboptimal

risk-adjusted performance relative to the full covariance Markowitz model in several Indonesian market contexts.

Studies comparing the two approaches on Indonesian stock indices consistently indicate that while both models produce similar portfolio returns, the Markowitz model achieves significantly lower portfolio risk. Research on ESG Leaders Index stocks found that the Single Index Model generated a portfolio risk of 0.0599%, nearly five times higher than the Markowitz model's 0.0121%, despite a comparable portfolio return of 0.0620%, resulting in a substantially lower Sharpe Index of 2.054% versus 4.940%. This divergence is attributed to the Markowitz model's explicit use of covariance information between all pairs of assets, which enables more precise diversification benefits compared to the SIM's reliance solely on systematic risk (beta). These findings align with broader international evidence that mean-variance optimisation continues to generate portfolios capable of delivering excess returns relative to benchmarks, particularly in global and emerging markets.

### **Optimal Portfolio Formation in the Indonesian Capital Market: IDX Indices**

The Indonesian Stock Exchange (IDX) maintains multiple thematic indices, each offering distinct risk-return profiles as investment universes for portfolio construction. Several quantitative studies have examined optimal portfolio formation within IDX indices, providing a direct empirical context for the present study. Research applying the Markowitz model to IDX30 stocks identified 14 optimal portfolio candidates from a sample of 50 IDX30 companies, yielding a portfolio expected return of 0.0075 (0.75%) per month and a portfolio risk of 0.0313 (3.13%) per month. A separate study using the Mean Absolute Deviation (MAD) model with Particle Swarm Optimisation (PSO) on IDX30 data from August–October 2024 selected 19 stocks with positive expected returns and achieved an optimal portfolio return of 0.00276 with a risk of 0.006705, well below the average individual stock risk of 0.014062.

Portfolio performance comparison between IDX30 and SRI-KEHATI indices found that IDX30 stocks yielded a higher monthly portfolio return of 11.3% with a lower risk of 0.53%, compared to SRI-KEHATI's 10.4% return at a risk of 0.82%, suggesting that the IDX30 offers a more favourable risk–return tradeoff in the Indonesian market. For the IDX ESG Leaders Index, Alghifari et al. (2023) identified 11 optimal stocks using the Markowitz model, with TLKM (22.94%), MIKA (20.60%), and TBIG (8.36%) carrying the largest weights, producing an expected portfolio return of 1.37% and a risk of 2.68%. Martia et al. (2025), applying the same model to a different observation period, found POWR (29.39%) and ICBP (20.77%) as the dominant allocations, reflecting temporal variation in optimal weights — a finding consistent with the literature's emphasis on periodic portfolio rebalancing. Collectively, these studies affirm that stock index-based universe selection is an effective starting point for optimal portfolio construction, as index membership criteria already screen for liquidity and fundamental quality.

### **The Impact of COVID-19 on Stock Market Risk and Portfolio Dynamics**

The COVID-19 pandemic introduced an unprecedented shock to global equity markets, fundamentally altering risk-return dynamics and challenging conventional portfolio optimisation assumptions. In Indonesia, the Composite Stock Price Index (IHSG/JCI) fell from 6,283 in January 2020 to 3,937 by 24 March 2020 — a decline of 36.77% — before recovering as pandemic control policies took effect. Analysis of COVID-19's differential impact on IDX30 stocks found that 24 of the constituent companies experienced a significant reduction in average share prices during the initial pandemic period, though subsequent government interventions

and economic stabilisation efforts produced a statistically significant positive difference in prices between the first and second years of the pandemic.

Research applying the Markowitz model to stocks across 11 IDX sectors during 2020–2021 found that the maximum Sharpe ratio portfolio achieved a weekly return of 1.48% with a standard deviation of 4.39%, while the minimum variance portfolio returned 0.24% at a standard deviation of 2.51%. In the post-pandemic context, studies using mean-variance optimisation based on Markowitz's theory across multiple sectors demonstrated substantial alterations in risk-return relationships, with certain sectors experiencing elevated volatility and reduced returns during peak pandemic stress periods.

These findings are corroborated by international evidence comparing COVID-19-period portfolio dynamics in Indonesia and China, which found that both markets presented viable optimal portfolio candidates under the Single Index Model, but with markedly different risk levels reflecting each economy's pandemic response. The broader implication for post-COVID portfolio analysis is that efficient frontier positions shift over time and pre-pandemic optimal weights may no longer reflect the prevailing covariance structure of market returns, necessitating re-estimation of optimal portfolios using post-2020 data.

### **Risk Measurement, the Sharpe Ratio, and Portfolio Performance Evaluation**

Portfolio performance evaluation in the empirical literature commonly employs three risk-adjusted metrics: the Sharpe Index, the Treynor Index, and the Jensen Alpha. The Sharpe Index, defined as  $S_p = (TR_p - RF) / \sigma_p$ , measures excess return per unit of total risk (standard deviation) and is particularly appropriate for portfolios that are not fully diversified. The Treynor Index,  $T_p = (TR_p - RF) / \beta_p$ , normalises excess return by systematic risk (beta) and assumes full diversification of unsystematic risk. Jensen's Alpha captures the abnormal return generated by a portfolio relative to the Capital Asset Pricing Model (CAPM) expectation, providing a direct measure of investment manager skill or index alpha. Empirical assessments of IDX portfolio performance consistently demonstrate that the Markowitz-optimised portfolio achieves a higher Sharpe ratio than both the market index and Single Index Model alternatives. A comparative study of JII (Jakarta Islamic Index) and IDX30 using the Sharpe ratio found that IDX30 outperformed JII across the majority of monthly observations from January 2017 to July 2019, with IDX30's maximum Sharpe ratio of 0.17436 substantially exceeding JII's 0.05622. This performance differential is partly attributable to IDX30's diversification across conventional economic sectors, which reduces exposure to sector-specific volatility relative to a narrower Islamic index universe.

## **RESEARCH METHODOLOGY**

### **Population and Sample**

The population in this study were stocks included in the IDXQ30 index. The sample in this study was 19 companies. The criteria for determining the sample in this study are as follows:

- A. Companies in IDX Quality30 that are listed on the Indonesia Stock Exchange during the research period 2021-2022
- B. Companies consistently included in the IDX Quality30 in the 2021-2022 period.

**Table 1**  
**Company List**

Number	Stock Code	Name of Stock
1	ACES	Ace Hardware Indonesia Tbk.
2	ASII	Astra International Tbk.
3	BBCA	Bank Central Asia Tbk.
4	BMRI	Bank Mandiri (Persero) Tbk.
5	CPIN	Charoen Pokphand Indonesia Tbk
6	GGRM	Gudang Garam Tbk.
7	HMSP	H.M. Sampoerna Tbk.
8	INTP	Indocement Tunggul Prakarsa Tbk.
9	ITMG	Indo Tambangraya Megah Tbk.
10	KLBF	Kalbe Farma Tbk.
11	LSIP	PP London Sumatra Indonesia Tbk.
12	MIKA	Mitra Keluarga Karyasehat Tbk.
13	MNCN	Media Nusantara Citra Tbk.
14	PTBA	Bukit Asam Tbk.
15	SCMA	Surya Citra Media Tbk.
16	SIDO	Industri Jamu dan Farmasi Sido Muncul Tbk.
17	TLKM	Telkom Indonesia (Persero) Tbk.
18	UNTR	United Tractors Tbk.
19	UNVR	Unilever Indonesia Tbk.

Furthermore, 19 companies that have met these criteria after selecting the optimal portfolio stock candidates obtained ten company stocks.

**Data Collection Techniques**

The type of data used is secondary data. The data required is the daily closing share price of each company. Daily closing prices were taken from January 1, 2021 - December 31, 2022. Data is taken from investing.com and the IDX website.

**Data Analysis Techniques**

Determining the optimal portfolio uses the steps of the Markowitz model with the help of the Solver program in Excel. The Solver program helps to find the optimal stock weight for optimal portfolio determination. Data analysis techniques are carried out by following the following steps (Hartono, 2014).

$$“Return” : Ri = \frac{(Pt - Pt-1)}{Pt-1} + \frac{Dt}{Pt-1} \dots\dots\dots(1)$$

$$“expected return” : E (Ri) = \frac{\sum_{t=1}^n Rit}{n} \dots\dots\dots(2)$$

$$\text{“standard deviation (risk)” : } SD = \frac{\sum_{t=1}^n [R_{it}-E(R_i)]^2}{n} \dots\dots\dots(3)$$

$$\text{“stock variance” : } \sigma_i^2 = SD_i^2 = \frac{\sum_{t=1}^n [R_{it}-E(R_i)]^2}{n} \dots\dots\dots(4)$$

$$\text{“covariance between stocks” : } \sigma_{ij} = \frac{\sum [(R_{it}-E(R_{it})) \cdot (R_{jt}-E(R_j))]}{n} \dots\dots\dots(5)$$

“proportion of funds from candidate portfolio stocks”:

$$\sigma_p^2 = \sum_{i=1}^n \sum_{j=1}^n w_i \cdot w_j \cdot \sigma_{ij} \dots\dots\dots(6)$$

If the above steps have been done correctly, which stocks will form the optimal portfolio in terms of return and risk, and how much the portfolio is formed will be seen.

**RESULTS AND ANALYSIS**

The Markowitz Method, also known as the Modern Portfolio Model, is a mathematical approach used to assist investors in optimizing their asset allocation in a portfolio. In searching for a good portfolio using the Solver simulation, several portfolio choices are used in the Markowitz Method. One of them is the Minimum Variance Portfolio.

In the purposive sampling that has been done, 19 stocks have been selected, and then the realized return and expected return are calculated. Based on the calculation of expected return, ten stocks have a positive expected return as a reference. After getting a positive expected return, the ten stocks are used as optimal portfolio candidates. The following is presented the expected return and standard deviation (risk), which is the optimal portfolio candidate for stocks listed on the IDXQ30 for the period January 2021 - December 2022 as follows.

**Table 1.**  
**Expected Return and Standard Deviation of Companies listed in IDXQ30 Period**  
**January 2021 – December 2022**

NO	CODE	E(R)	(σ)
1	ASII	0.01895	0.00007
2	BBCA	0.01854	0.00087
3	BMRI	0.02875	0.00006
4	ITMG	0.02792	0.00249
5	KLBF	0.02013	0.00090
6	MIKA	0.02418	0.00061
7	PTBA	0.02247	0.00080
8	SIDO	0.01588	0.00001
9	TLKM	0.01737	0.00040
10	UNTR	0.02293	0.00022

**Sources: Data processed, 2023**

From Table 1, the highest expected return value for BMRI shares is 0.02875, with a risk level of 0.00006, followed by ITMG shares, namely 0.02792, with a risk level of 0.00249. This shows that the expected level of return has a straight relationship to the risk accepted by an investor. After calculating the expected return and risk level, the next step is to find the

covariance value between shares in forming an optimal portfolio, as shown in the following table.

**Table 2.**  
**Covariance Between Optimal Portfolio Forming Stocks**

	ASII	BBCA	BMRI	ITMG	KLBF	MIKA	PTBA	SIDO	TLKM	UNTR
ASII	0.0004	0.0002	0.0001	0,0001	0,0001	0,0000	0,0001	0,0000	0,0001	0,0001
BBCA	0.0002	0.0003	0.0001	0,0001	0,0001	0,0000	0,0001	0,0000	0,0001	0,0001
BMRI	0.0001	0.0001	0.0008	0,0001	0,0001	0,0000	0,0001	0,0000	0,0001	0,0001
ITMG	0.0001	0.0001	0.0001	0,0008	0,0000	0,0000	0,0004	0,0000	0,0000	0,0003
KLBF	0.0001	0.0001	0.0001	0,0000	0,0004	0,0001	0,0000	0,0000	0,0001	0,0000
MIKA	0.0000	0.0000	0.0000	0,0000	0,0001	0,0006	0,0000	0,0000	0,0000	0,0000
PTBA	0.0001	0.0001	0.0001	0,0004	0,0000	0,0000	0,0005	0,0000	0,0000	0,0003
SIDO	0.0000	0.0000	0.0000	0,0000	0,0000	0,0000	0,0000	0,0003	0,0000	0,0000
TLKM	0.0001	0.0001	0.0001	0,0000	0,0001	0,0000	0,0000	0,0000	0,0003	0,0001
UNTR	0.0001	0.0001	0.0001	0,0003	0,0000	0,0000	0,0003	0,0000	0,0001	0,0005

**Sources: Data processed, 2023**

Based on Table 2 above, it can be seen that the highest covariance value is owned by BMRI and ITMG shares of 0.0008 or 0.08%, and the lowest variant value is owned by BBCA, SIDO, and TLKM shares with the same value of 0.0003 or 0.03%.

**Table 3.**  
**Correlation Between Optimal Portfolio Forming Stocks**

	ASII	BBCA	BMRI	ITMG	KLBF	MIKA	PTBA	SIDO	TLKM	UNTR
ASII	1,0000									
BBCA	0,4362	1,0000								
BMRI	0,2497	0,2379	1,0000							
ITMG	0,1198	0,1914	0,1374	1,0000						
KLBF	0,1654	0,1624	0,1408	0,0142	1,0000					
MIKA	0,0206	-0,0256	0,0672	-0,0409	0,1686	1,0000				
PTBA	0,1718	0,2186	0,1956	0,6521	0,0626	-0,0277	1,0000			
SIDO	0,0425	0,0588	0,0451	0,0421	-0,0245	-0,0633	0,0246	1,0000		
TLKM	0,2826	0,2582	0,1526	0,0117	0,1560	0,1087	0,1226	0,0100	1,0000	
UNTR	0,2651	0,2460	0,2170	0,4290	0,0915	-0,0028	0,5516	0,0181	0,1285	1,0000

**Sources: Data processed, 2023**

From Table 3 above, it can be seen that the resulting correlation values are primarily positive, which means that the combination of the two stocks in the portfolio tends to move in the same direction. However, there is also a negative correlation value, which means that the combination of the two stocks in the portfolio moves in a different or opposite direction.

The final step in calculating the optimal portfolio formation using the Markowitz model is to calculate the proportion of each stock in the portfolio with the Microsoft Excel Solver presented in Table 4 Below

**Table 4**  
**Proportion of Optimal Portfolio Shares**

No.	Code	Proportion
1	ASII	7,39%
2	BBCA	8,64%
3	BMRI	0,94%
4	ITMG	3,53%
5	KLBF	11,90%
6	MIKA	12,09%
7	PTBA	5,36%
8	SIDO	30,81%
9	TLKM	15,61%
10	UNTR	3,72%

Sources: Data processed, 2023

Table 4 shows that the highest share proportion value is found in SIDO shares at 30.81%, TLKM shares at 15.61%, MIK shares at 12.09%, and KLBF shares at 11.90%. Meanwhile, the lowest share proportion was found in BMRI at 0.94%. From Table 4, a graph of the proportion of each share can be depicted, which can be seen in Figure 1.

After calculating the proportion of shares, calculations are carried out to find the return on the share portfolio using the Markowitz model. The results obtained can be seen in Table 5.

Based on tables 4 and 5, shows that the proportion of each selected 1tenshares forming the optimal portfolio is as follows: SIDO 30.81%, TLKM 15.61%, MIKA 12.09%, KLBF 11.90%, BBCA 8.64%, ASII 7.39%, PTBA 5.35%, UNTR 3.73%, ITMG 3.53%, BMRI 0.94%. The proportion of funds generated can provide an expected return value of 0.047% with a risk level (standard deviation) of 0.885%.

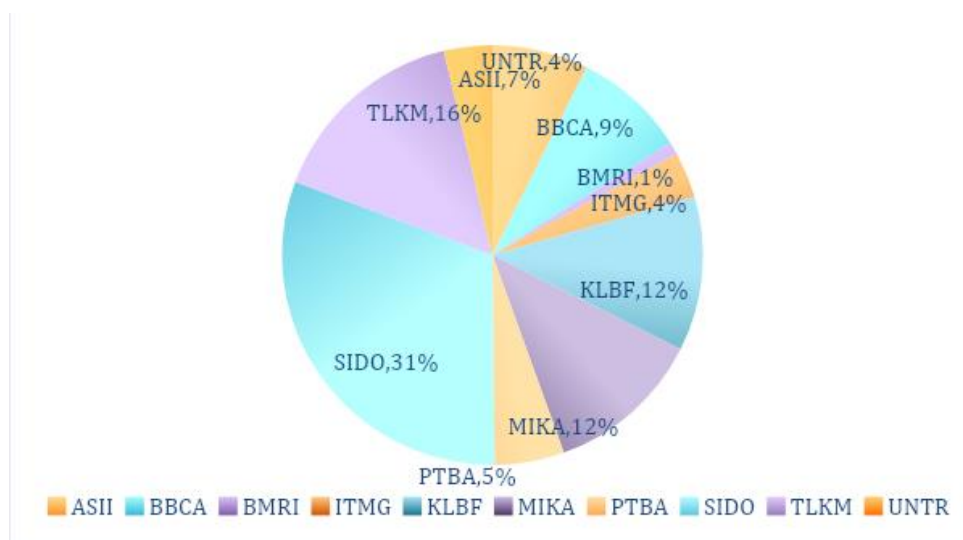


Figure 1.  
Markowitz Model Optimal Stock Portfolio Proportion Graph

**Table 5**  
**Calculation of Portfolio Return and Portfolio Risk Markowitz Model**

Description	Value
Portofolio Return (E(R))	0,00047
Portfolio Risk ( $\sigma$ )	0,00885

**Sources: Data processed, 2023**

## CONCLUSION

Based on the results of data analysis of optimal portfolio formation using the Markowitz Mean-Variance model applied to IDXQ30 constituent stocks on the Indonesia Stock Exchange for the period January 2021 to December 2022, this study has produced ten (10) candidate stocks as optimal portfolio compilers. The selected stocks are SIDO (30.81%), TLKM (15.61%), MIKA (12.09%), KLBF (11.90%), BBCA (8.64%), ASII (7.39%), PTBA (5.35%), UNTR (3.73%), ITMG (3.53%), and BMRI (0.94%). The proportion of funds allocated to each stock reflects a diversification strategy that distributes risk across multiple industrial sectors, ranging from consumer goods and telecommunications to healthcare, banking, and energy — a configuration consistent with Markowitz's (1952) foundational principle that unsystematic risk can be minimised through cross-sector diversification.

The optimal portfolio generated from this composition yields an expected return of 0.047% per day with a portfolio risk level (standard deviation) of 0.885%. This result demonstrates that the IDXQ30 index does, in fact, serve as a viable and productive investment universe for constructing risk-efficient portfolios in the post-COVID economic recovery context. The post-COVID observation period is particularly significant: the Indonesia Stock Exchange entered a phase of gradual recovery following the pandemic-induced market contraction of 2020, and the IDXQ30 index — which screens constituent stocks based on high profitability, strong solvency, stable earnings growth, and transaction liquidity — proved resilient in producing stocks with positive expected returns and manageable risk levels during this recovery phase. The dominance of SIDO in the optimal portfolio allocation (30.81%) suggests that consumer staples stocks with stable cash flows and low systematic risk offer a key anchor for risk-minimising strategies, while the inclusion of TLKM and MIKA further reflects investor preference for defensive sectors under post-crisis market conditions.

These findings carry meaningful implications for both individual investors and institutional fund managers operating within the Indonesian capital market. First, not all IDXQ30 constituent stocks qualify for an optimal portfolio — out of the thirty index members, only ten met the Markowitz efficiency criteria during the study period, underscoring the importance of rigorous quantitative screening rather than passive index replication. Second, the relatively low portfolio risk of 0.885% (standard deviation) achieved alongside a positive expected return confirms that the IDXQ30 index, when approached through mean-variance optimisation, offers favourable risk–return tradeoffs that are superior to holding individual stocks in isolation. Third, the sectoral breadth of the ten selected stocks — spanning pharmaceuticals (MIKA, KLBF), banking (BBCA, BMRI), energy and mining (PTBA, ITMG, UNTR), automotive (ASII), telecommunications (TLKM), and consumer goods (SIDO) — validates the diversification mechanism at the core of Modern Portfolio Theory and demonstrates its operational applicability in an emerging market setting recovering from a global health crisis.

In conclusion, this study confirms that IDXQ30 investment stocks do offer optimal risk–return tradeoffs in the post-COVID period, provided that investors apply a disciplined portfolio selection methodology such as the Markowitz model rather than adopting an indiscriminate index-wide investment approach. Future research is recommended to extend the observation period into 2023–2025 to examine whether the optimal portfolio composition and its risk–return characteristics remain stable as the Indonesian economy consolidates its post-pandemic recovery, and to compare the Markowitz model's performance against alternative approaches such as the Single Index Model and the Mean Absolute Deviation model within the IDXQ30 universe.

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### **Do Idx30 Investment Stocks Offer Optimal Risk–Return Tradeoffs? A Post-Covid Study**

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