Assessment of Indonesian Banking Stock Performance Using the Multi-Index Approach 2018-2022

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ABSTRACT

Purpose – This research aims to analyze the performance of banking company stocks on Indonesia Stock Exchange (IDX) in the period 2018 to 2022. **Methodology/approach –** It is a quantitative descriptive research and the sampling method used purposive sampling. Over the observation period, 2220 monthly closing data points were collected from 37 banking company stocks as a sample. **Findings –** The research results indicate based on the Sharpe Index, ARTO and BNLI exhibit the best performance. According to the Treynor Index, BMRI show the best performance, while the Jensen Index highlights BBHI as having the best performance. **Novelty/value –** These findings can be valuable for investors in making informed decisions regarding their investments in banking companies on Indonesian Stock Exchange.

INTRODUCTION

Investment is the allocation of resources to assets expected to generate economic returns or profits in the future. With the growth of financial literacy and technology, investment activities have become increasingly accessible through the purchase of financial assets such as stocks, bonds, mutual funds, government securities, and other securities, even with relatively affordable funds. Indonesian society is currently very interested in investing in the capital market, as evidenced by the statistical data from the Indonesia Central Securities Depository (KSEI) as follows:
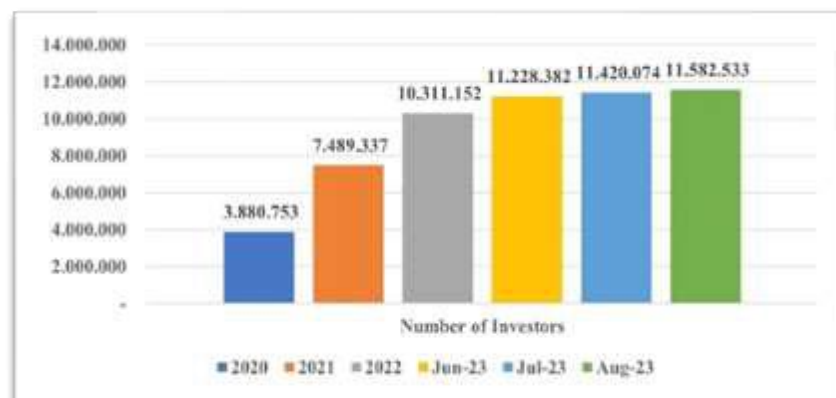

Figure 1. Growth of Indonesian Capital Market Investors
Source: Indonesian Capital Market Statistics - KSEI August 2023, data reprocessed

The chart above illustrates a substantial increase in the number of investors in the Indonesian capital market. In 2020, the recorded number of investors was only 3.8 million. In the latest data, the number of Indonesian capital market investors has surged to 11.5 million, representing an increase of over 200% in the last three years. This remarkable growth demonstrates a high level of interest among Indonesians in capital market investments. Samsul Hidayat, the President Director of KSEI, has indicated that the number of capital market investors could reach 12 million by the end of 2023, based on current trends (Hema, 2023). Notably, the Indonesian Capital Market is dominated by Gen-Z investors. As of August 8, 2023, KSEI data indicates that 57.26% of investors are under 30 years of age, with total assets amounting to IDR 50.08 trillion (Puspadini, 2023).

The surge in the number of stock investors has introduced several challenges, including an influx of novice investors who may expect substantial profits from the capital market without fully considering the associated risks. Many beginners are influenced by volatile market movements, and some have even faced severe financial losses, which tragically led to loss of life due to stock investments (Putra, 2021; Putra, 2020). These losses are not confined to inexperienced investors; even experienced ones, like Bill Hwang, have encountered losses exceeding 200 trillion rupiah in just two days (Dhany, 2021).

Based on the description above, a study is needed to assist investors in making investment decisions. What investors need to do before making investment decisions is to understand the potential profits and risks in their investments. The risk and return in an investment will vary depending on the type of investment asset (Laksana, 2024; Liu & Tsyvinski, 2021). According to (Hartono, 2022), investment decisions should be made carefully, with two main factors to consider in investment decisions being the rate of return and risk. By analyzing the rate of return and risk, we can determine the performance of an investment instrument.

Performance evaluation is a critical step that investors should undertake before making investment decisions. The effectiveness of an investment instrument can also be assessed based on its performance; the higher the performance of an investment, the more effective it is. The Sharpe, Treynor, and Jensen indices are common and widely used methods for evaluating investment performance (Hamdika et al., 2022; Henriques & Sadorsky, 2018; Laksana, 2024; Laksana & Fauziyah, 2024; Lumbantobing & Sadalia, 2021; Setyowati & Husnurrosyidah, 2021). Research that examines stock performance evaluation has been conducted by several researchers and has resulted in various conclusions (Ahmad Sodiqin, 2020; Nurhayati et al., 2021; Robiyanto, 2018; Yunita & Rinaldi, 2022; Yunita, 2023). Previous research has taken samples from indices like LQ45, JII, and Sri-Kehati, as seen in studies (Azizah et al., 2014; Bukit et al., 2019; Susilowati et al., 2020). There was also a study (Wihardi & Lutfi, 2020) on banking company stocks, but it only sampled 10 companies.

This research aims to evaluate the performance of banking company stocks on the Indonesia Stock Exchange during the period 2018-2022. This study references the research conducted by (Yunita, 2023), with the key difference being the focus on a different research subject, which is banking company stocks, and a longer time frame of 5 years. The choice of banking company stocks as the research subject is based on the fact that these stocks are often recommended by capital market analysts (Hidayatullah, 2023). In 2023, banking company stocks proved to be profitable for investors, with examples like BRI, Mandiri, and Bank Niaga yielding more than a 20% return. In fact, Bank Mandiri's stock ranked third in the Asia region as the most profitable banking stock for investors (Octaviano, 2023). This research is expected to provide crucial information for investors in making their investment decisions.

LITERATURE REVIEW
Prospect Theory
The prospect theory was first formulated by Kahneman in his paper "Prospect Theory: An Analysis of Decision under Risk" (Kahneman & Tversky, 1979). The prospect theory explains that investment

choices tend to be evaluated based on gains and losses. Therefore, investors will seek as much information as possible to make their investment decisions. An investor's understanding of the value of risk and return influences the success of an investment. Investment decisions are a lengthy and ongoing process, starting from setting investment goals to periodic assessments. The appropriate measures of risk, return, and performance should be determined in investment decisions and evaluations (Andaresta & Purwanto, 2023).

Stocks

Stocks serve as tangible evidence of ownership in a company (Hartono, 2017). They represent a claim to the company's assets for those who hold them. Investors who own stocks in a corporation have a vested interest in the company's profits and assets, with these entitlements factoring in any corporate obligations (Tandelilin, 2017).

Return & Risk

Return is the rate of profit derived from an investment, while risk pertains to the level of uncertainty and potential loss associated with that investment. Return and risk share a close relationship, particularly a one-way relationship. In this context, a one-way relationship signifies that as the risk of an investment vehicle increases, the return on the investment also rises, and conversely, when the risk decreases, so does the rate of return (Trianti et al., 2022). Investors can achieve higher returns by being mindful of the risks they undertake. The relationship between risk and profit is linear: the higher the risk, the greater the profit (Tandelilin, 2017). Return and risk can be calculated using the following formulas:

$$\text{Return} = \frac{P_t - P_{t-1}}{P_{t-1}}$$

$$\text{Risk} = \sqrt{\sum_{j=1}^{n} (R_{ij} - \text{E}(R_i))^2 . P_j}$$

Evaluation of Investment Performance

Evaluating investment performance is the process of analyzing the returns and risks of an investment portfolio to determine its effectiveness in achieving an investor's goals. Performance evaluation involves comparing portfolio performance with benchmarks, such as market indices, as well as analyzing each security and its contribution to overall performance (Yunita, 2023). William Sharpe, Treynor, and Michael Jensen pioneered the concept of portfolio performance measurement. To understand which portfolios perform better when compared to each other, it is important to ascertain whether the constructed portfolios can increase the likelihood of achieving investment objectives (Ruma & Tawe, 2023).

The Sharpe Index, also known as the Sharpe Ratio, was introduced by William F. Sharpe in 1966. The Sharpe Method, or Reward to Volatility Ratio (RVAR), is a method used to compare portfolio performance using the concept of the Capital Market Line (CML) or, more commonly, as the Reward to Variability Ratio (RVAR) (MUTIASALISA et al., 2021). The Sharpe ratio is employed to assess whether an investment provides a favorable return in relation to the associated risk. A higher Sharpe ratio signifies that an investment generates superior returns compared to the level of risk (Yunita, 2023).

The Treynor Index, introduced by Jack L. Treynor, originated in the 1960s. The Treynor method or Reward-to-Volatility Ratio (RVOL) illustrates the relationship between a portfolio's rate of return and its beta (Hartono, 2017). A higher Treynor Index indicates that an investment offers a better return in relation to the assumed level of market risk. The Treynor Index is frequently employed to compare the performance of various investments or portfolios and can assist investors in selecting investments that provide the optimal balance of return and risk (Yunita, 2023).

The Jensen Index, introduced by Michael C. Jensen in 1968, is also known as Jensen alpha. This index measures the difference between the actual return of a portfolio and the risk premium that the portfolio should receive based on its systematic risk and the use of the Capital Asset Pricing Model (CAPM) (Tandelilin, 2017). The Jensen Index is employed to evaluate whether portfolio managers add value through their investment decisions. A positive Jensen Index suggests that the portfolio's performance surpasses the benchmark, while a negative Jensen Index indicates underperformance (Yunita, 2023).

METHOD

This research employs the population data of monthly closing prices of banking company stocks listed on the Indonesia Stock Exchange (IDX) during the period 2018 to 2022. The research variables include the Sharpe index, Treynor index, and Jensen index. Secondary data is used in this study, obtained from the information provider website - yahoofinance.com. The data collected consists of numerical values, which can also be referred to as quantitative data. Descriptive analysis is the analytical technique used in this research. To obtain values for each variable, data processing is performed using the Microsoft Excel program. The closing prices of each stock and data on the BI 7 days reverse repo rate, serving as the return for the risk-free asset, are prepared for processing. The sampling method employed is purposive sampling, with criteria being banking company stocks listed on the IDX from 2018 to 2022 and have price changes every year. Based on these criteria, 37 companies were selected, resulting in 60 data points for each company, totaling 2220 observations. Below is the list of companies that meet the criteria:

Table 1. List of Banking Company Stocks 2018-2022

No	Stock Code	Company Name	No	Stock Code	Company Name
1	AGRO	PT Bank Raya Indonesia Tbk	20	BMRI	PT Bank Mandiri Tbk
2	AGRS	PT Bank IBK Indonesia Tbk	21	BNBA	PT Bank Bumi Arta Tbk
3	ARTO	PT Bank Jago Tbk	22	BNGA	PT Bank CIMB Niaga Tbk
4	BABP	PT Bank MNC Internasional Tbk	23	BNII	PT Bank Maybank Indonesia Tbk
5	BACA	PT Bank Capital Indonesia Tbk	24	BNLI	PT Bank Permata Tbk
6	BBCA	PT Bank Central Asia Tbk	25	BSIM	PT Bank Sinarmas Tbk
7	BBHI	PT Allo Bank Indonesia Tbk	26	BTPN	PT Bank BTPN Tbk
8	BBKP	PT Bank KB Bukopin Tbk	27	BVIC	PT Bank Victoria International Tbk
9	BBMD	PT Bank Mestika Dharma Tbk	28	DNAR	PT Bank Oke Indonesia Tbk
10	BBNI	PT Bank Negara Indonesia Tbk	29	INPC	PT Bank Artha Graha Internasional Tbk
11	BBRI	PT Bank Rakyat Indonesia Tbk	30	MAYA	PT Bank Mayapada Internasional Tbk
12	BBTN	PT Bank Tabungan Negara Tbk	31	MCOR	PT Bank China Construction Bank Indonesia Tbk
13	BBYB	PT Bank Neo Commerce Tbk	32	MEGA	PT Bank Mega Tbk
14	BDMN	PT Bank Danamon Indonesia Tbk	33	NISP	PT Bank OCBC NISP Tbk
15	BINA	PT Bank Ina Perdana Tbk	34	NOBU	PT Bank Nationalnobu Tbk
16	BJBR	PT Bank Pembangunan Daerah Jawa Barat dan Banten Tbk	35	PNBN	PT Bank Pan Indonesia Tbk
17	BJTM	PT Bank Pembangunan Daerah Jawa Timur Tbk	36	PNBS	PT Bank Panin Dubai Syariah Tbk
18	BKSW	PT Bank QNB Indonesia Tbk	37	SDRA	PT Bank Woori Saudara Indonesia 1906 Tbk
19	BMAS	PT Bank Maspion Indonesia Tbk			

Source: idx.co.id, data reprocessed

Data Collection

The analysis of stock performance data was conducted by evaluating the performance using Sharpe, Treynor, and Jensen measures. The following are the stages of performance evaluation, along with a description of the research variables:

1. Determine stock returns
2. Determine standard deviation
3. Determine the stock beta
4. Determine risk-free interest rate
5. Calculate the Sharpe index
6. Calculate Treynor index and
7. Calculate Jensen index

Below is a description of the variables that will be processed in this study:

Table 2. Variable Description

Variable	Annotation	Formula
Sharpe Index	R_p = Return portfolio R_f = Risk Free Rate SD_i = Standard deviation i	$Si = \dfrac{R_p - R_f}{SD_i}$
Treynor Index	R_p = Return portfolio R_f = Risk Free Rate β_i = Beta i	$Ti = \dfrac{R_p - R_f}{\beta_i}$
Jensen Index	R_p = Return portfolio R_m = Return market R_f = Risk Free Rate β_i = Beta i	$Ji = (R_p - R_f) - (R_m - R_f). \beta_i$

Source: (Yunita, 2023)

RESULT AND DISCUSSION

Result

The results of calculating the performance of banking stocks using the Sharpe index as a reference are presented in Table 3 below:

Table 3. Performance of Banking Company Stocks based on the Sharpe Index 2018-2022

No	Stock Code	Sharpe Index				
		2018	2019	2020	2021	2022
1	AGRO	-21,09037	-16,16139	66,83486	14,28536	-21,78633
2	AGRS	-0,24215	-8,97897	1,24713	1,05693	-16,26923
3	ARTO	0,79288	**208,28590**	1,32092	91,02578	-17,19869
4	BABP	-2,80770	-2,98598	-5,34470	35,57564	-12,62982
5	BACA	13,15722	-2,07297	5,60044	-7,08867	-15,43268
6	BBCA	9,84020	24,06326	-1,23388	2,95311	9,11778
7	BBHI	9,53898	-11,11984	31,08886	84,23142	-13,48623
8	BBKP	-18,60401	-11,83460	26,80786	-11,97067	-29,28101
9	BBMD	-3,40068	43,30800	-12,75491	14,78173	1,01858
10	BBNI	-7,14469	-10,30015	-7,48397	2,86040	18,46621
11	BBRI	-2,12987	10,54375	-2,83452	-2,49311	9,97218
12	BBTN	-11,55206	-11,05403	-5,62172	-1,42998	-12,80338
13	BBYB	-18,54628	-2,84977	-0,65482	114,36413	-17,57965
14	BDMN	2,25649	-19,65159	-7,81381	-13,00499	6,08708

15	BINA	-8,18134	7,77894	-8,33796	82,42647	0,38339
16	BJBR	-12,04598	-21,36588	7,59354	-9,68221	-3,42974
17	BJTM	-5,14135	-5,00202	-1,83848	2,80754	-10,57872
18	BKSW	-7,39970	-1,33699	-8,13400	11,62979	-16,79271
19	BMAS	-2,78587	-2,80152	2,95151	39,56391	-9,74595
20	BMRI	-6,13624	-0,97745	-6,55541	4,09730	21,50518
21	BNBA	-0,72199	7,38740	9,08696	91,91424	-20,71641
22	BNGA	-18,83413	-0,08112	-0,38144	-3,18623	14,61487
23	BNII	-18,80047	-2,27496	14,47237	-2,58210	**-31,71615**
24	BNLI	-2,38847	26,63226	32,51112	-15,67087	-25,76258
25	BSIM	-9,77998	0,29420	-7,32560	12,52559	-3,35549
26	BTPN	13,19921	-7,65475	-3,25019	-16,86357	-2,52060
27	BVIC	-9,01472	-17,40129	8,14919	13,57567	-16,14998
28	DNAR	-1,45374	-3,44608	-3,85307	9,59804	-19,14836
29	INPC	-20,14685	-5,07998	3,76819	11,27366	-22,08010
30	MAYA	27,63578	9,93783	-14,85802	-20,93774	-10,41550
31	MCOR	-22,36882	-4,36752	0,87565	-5,92446	-26,77830
32	MEGA	15,51341	6,91214	2,62202	4,35937	-12,14246
33	NISP	-1,96650	-7,07625	-3,90758	-16,34273	5,44723
34	NOBU	-0,35432	-4,13786	-2,62284	-3,61974	-10,89276
35	PNBN	-1,90950	4,61120	-7,87757	-14,33374	24,49009
36	PNBS	-9,08514	-2,76880	17,18317	-0,22852	-8,39468
37	SDRA	-2,06785	-1,81315	-3,80268	-7,12462	-2,52312

Source: data processed by researchers (2024)

Table 3 reveals that the stock performance of all banking companies assessed using the Sharpe index shows varying results. A positive Sharpe Index indicates that the stock return is higher than the risk free rate while a negative Sharpe Index indicates that the stock return is not comparable or smaller than the risk free rate. The Sharpe index values for banking companies during the 2018-2022 period fall within the range of **-31,71615** to **208,28590**. The most favorable performance among banking companies was achieved by PT Bank Jago Tbk (ARTO), with a Sharpe index value of **208,28590** in 2019. In contrast, the poorest performance was observed at PT Bank Maybank Indonesia Tbk (BNII), with a Sharpe index value of **-31,71615** in 2022.

Table 4. Performance of Banking Company Stocks based on the Treynor Index 2018-2022

No	Stock Code	Treynor Index				
		2018	2019	2020	2021	2022
1	AGRO	-33,09434	-10,00739	78,98073	9,16606	-1,95730
2	AGRS	-0,16534	56,81126	7,01995	0,15642	-1,49972
3	ARTO	0,53671	-142,99674	0,90979	73,14269	-1,58875
4	BABP	72,81736	7,91429	4,69754	5,70783	-0,87223
5	BACA	-12,16132	-1,10414	-5,02754	-1,31893	-1,81007
6	BBCA	5,10404	-99,60156	-2,18122	5,11647	1,26161
7	BBHI	4,43372	68,26645	24,63036	21,89042	-1,29185

		2018	2019	2020	2021	2022
8	BBKP	5,48777	-7,73074	91,56480	-8,10267	-2,32398
9	BBMD	-4,95118	-26,16463	-7,58356	9,23295	5,15131
10	BBNI	29,74003	-17,25746	-24,28002	4,22437	1,99942
11	BBRI	1,67469	4,93261	20,07679	-1,41248	1,65085
12	BBTN	9,55670	-10,30528	-7,65725	-1,79587	-1,88505
13	BBYB	-5,33490	1,49698	-0,58568	29,90534	-1,83882
14	BDMN	2,10260	30,29342	-33,98565	-8,87441	1,43994
15	BINA	4,68337	-22,30498	-9,61638	64,64909	0,12679
16	BJBR	-8,21479	82,78433	18,29246	-13,45849	-0,46531
17	BJTM	-22,84125	7,76099	59,35474	3,76116	-1,16195
18	BKSW	6,91590	0,57165	18,38667	1,66311	-1,64671
19	BMAS	10,61791	18,73203	3,91770	7,99425	-4,17122
20	BMRI	**121,68722**	-0,50398	-13,81718	4,75754	4,28741
21	BNBA	1,67357	58,25149	4,64499	15,56947	-2,62674
22	BNGA	-42,39886	-0,03986	-1,80181	-1,51767	1,37380
23	BNII	-141,18536	**-344,29420**	90,39447	-0,57796	-3,10311
24	BNLI	0,66310	30,21512	-102,26437	-23,89084	-4,76846
25	BSIM	22,44736	-0,14811	-10,23912	3,49343	-0,82805
26	BTPN	34,47619	-7,45990	4,56243	-12,39601	-0,46569
27	BVIC	-9,65378	-10,65841	6,92138	1,70230	-1,21753
28	DNAR	-0,06533	-0,18099	-0,30945	0,65265	-0,45781
29	INPC	-10,82355	-1,45077	2,02135	1,50138	-1,82718
30	MAYA	11,46790	-6,99079	27,93381	-132,37517	-2,20938
31	MCOR	29,15064	-9,58982	-2,71332	-1,17590	-2,02256
32	MEGA	-46,74361	5,50551	22,36561	-18,84566	-40,82453
33	NISP	-43,03716	-3,91215	-11,15075	-14,46228	0,72724
34	NOBU	-0,37080	21,24004	9,21958	-1,12844	-1,32724
35	PNBN	1,70154	-27,42256	-25,77054	-12,98259	8,67384
36	PNBS	4,11176	4,42447	-35,84247	-0,08401	-1,56599
37	SDRA	5,47464	3,03984	-4,13040	-2,43189	-0,28740

Source: data processed by researchers (2024)

Table 4 reveals that the Treynor index values range from **-344,29420** to **121,68722**. The Treynor index values for banking companies during the 2018-2022 period exhibit both positive and negative results. A positive value indicates favorable stock performance with a rate of return exceeding the level of risk free rate, while a negative value signifies subpar stock performance, implying that the rate of return falls below the risk free rate level. The highest Treynor index value was attained by PT Bank Mandiri Tbk (BMRI) in 2018, reaching **121,68722**, while the lowest value of **-344,29420** was recorded by PT Bank Maybank Indonesia Tbk (BNII) in 2019.

Table 5. Performance of Banking Company Stocks based on the Jensen Index 2018-2022

No	Stock Code	Jensen Index				
		2018	2019	2020	2021	2022
1	AGRO	-0,45949	-0,41593	4,18972	0,70848	-0,81717
2	AGRS	-0,00869	-0,48936	0,06512	0,04404	-0,49813
3	ARTO	0,05054	**15,78731**	0,11893	3,44838	-0,80795
4	BABP	-0,07072	-0,05652	-0,04334	2,65396	-0,49750

5	BACA	0,33571	-0,05428	0,20692	-0,34405	-0,54779
6	BBCA	0,13823	0,22924	-0,02851	0,04253	0,13114
7	BBHI	0,47026	-0,32544	2,35841	8,27442	-0,59446
8	BBKP	-0,59830	-0,23156	1,52602	-0,57022	-0,66248
9	BBMD	-0,04667	0,97130	-0,50055	0,29601	0,02000
10	BBNI	-0,16257	-0,16384	-0,25489	0,05701	0,32652
11	BBRI	-0,04764	0,14708	-0,09521	-0,05190	0,16186
12	BBTN	-0,34229	-0,22077	-0,22603	-0,03349	-0,25978
13	BBYB	-0,33612	-0,05770	-0,02295	8,06898	-0,79514
14	BDMN	0,04404	-0,53720	-0,24688	-0,28892	0,12163
15	BINA	-0,38388	0,22694	-0,23784	4,48198	0,00719
16	BJBR	-0,19503	-0,47842	0,26687	-0,17477	-0,03257
17	BJTM	-0,07894	-0,06381	-0,04988	0,06655	-0,09341
18	BKSW	-0,29597	-0,07179	-0,45591	0,74553	-0,50903
19	BMAS	-0,11308	-0,08360	0,16240	2,96355	-0,41003
20	BMRI	-0,12925	-0,01438	-0,21692	0,07442	0,37273
21	BNBA	-0,01436	0,10209	0,13405	7,50449	-0,75476
22	BNGA	-0,37259	-0,00005	-0,01082	-0,06818	0,18786
23	BNII	-0,26638	-0,05624	0,63777	-0,08425	-0,35335
24	BNLI	-0,05697	0,96899	1,34362	-0,52838	-0,37883
25	BSIM	-0,42750	0,00546	-0,17762	0,68438	-0,07437
26	BTPN	0,34811	-0,11090	-0,08733	-0,19378	-0,02860
27	BVIC	-0,24400	-0,61192	0,31889	0,72522	-0,51587
28	DNAR	0,01168	-0,14233	-0,21608	0,58711	-0,45870
29	INPC	-0,27408	-0,07045	0,09274	0,77021	-0,48118
30	MAYA	0,95329	0,32979	-0,54089	**-0,89158**	-0,25222
31	MCOR	-0,38851	-0,14720	0,03381	-0,21186	-0,35050
32	MEGA	0,41534	0,24135	0,09174	0,14237	-0,41759
33	NISP	-0,13879	-0,06727	-0,07148	-0,21912	0,07185
34	NOBU	-0,00743	-0,16655	-0,11670	-0,18474	-0,26553
35	PNBN	-0,04877	0,10953	-0,24386	-0,31378	0,95990
36	PNBS	-0,28709	-0,05674	0,61589	-0,01978	-0,29899
37	SDRA	-0,08594	-0,09229	-0,14752	-0,27902	-0,03125

Source: data processed by researchers (2024)

In Table 5, the performance of banking company stocks, as indicated by the Jensen index, during the 2018-2022 period, exhibits both positive and negative results. A positive Jensen Index value indicates that the stock is performing well and outperforming the benchmark used, while a negative Jensen value indicates poor stock performance. The Jensen index values for banking companies during the 2018-2022 period range from **-0,89158** to **15,78731**. In 2019, PT Bank Jago Tbk (ARTO) recorded the highest Jensen value of **15,78731**, while the lowest value of **-0,89158** was recorded by PT Bank Mayapada Internasional Tbk (MAYA) in 2021.

Table 6. Banking Company Stock Performance Ranking based on the Sharpe Index 2018-2022

Ranking	Stock Code				
	2018	**2019**	**2020**	**2021**	**2022**
1	MAYA	**ARTO**	AGRO	BBYB	PNBN
2	MEGA	BBMD	**BNLI**	BNBA	BMRI
3	BTPN	**BNLI**	BBHI	**ARTO**	BBNI
4	BACA	BBCA	BBKP	BBHI	BNGA
5	BBCA	BBRI	PNBS	BINA	BBRI
33	BNII	BBKP	PNBN	PNBN	INPC
34	BNGA	AGRO	BKSW	BNLI	BNLI
35	INPC	BVIC	BINA	NISP	MCOR
36	AGRO	BDMN	BBMD	BTPN	BBKP
37	MCOR	BJBR	**MAYA**	**MAYA**	BNII

Source: data processed by researchers (2024)

Further discussion included an examination of stock performance rankings during the 2018-2022 period. In Table 6, we present the top 5 rankings and the bottom 5 rankings. The best-performing banking company stocks, as determined by the Sharpe index, were PT Bank Jago Tbk (ARTO) and PT Bank Permata Tbk (BNLI), both consistently ranking in the top 3 for 2 years from 2018 to 2022. ARTO was ranked in the top 3 in 2019 and 2021 while BNLI in 2019 and 2020. Conversely, PT Bank Mayapada Internasional Tbk (MAYA) recorded the weakest stock performance, ranking in the bottom 3 in 2020 and 2021.

Table 7 reveals that the top-performing banking company stocks from 2018 to 2022, based on the Treynor index is PT Bank Mandiri Tbk (BMRI). BMRI consistently ranked in the top 3 for 2 years. BMRI ranked in the top 3 in 2018 and 2022. PT Bank Mega Tbk (MEGA) and PT Bank Permata Tbk (BNLI), on the other hand, recorded the weakest stock performance, being in the bottom 3 in 2018, 2020, 2021 and 2022.

Table 7. Banking Company Stock Performance Ranking based on the Treynor Index 2018-2022

Ranking	Stock Code				
	2018	**2019**	**2020**	**2021**	**2022**
1	**BMRI**	BJBR	BBKP	ARTO	PNBN
2	BABP	BBHI	BNII	BINA	BBMD
3	BTPN	BNBA	AGRO	BBYB	**BMRI**
4	BBNI	AGRS	BJTM	BBHI	BBNI
5	MCOR	BDMN	MAYA	BNBA	BBRI
33	AGRO	BBMD	BBNI	BJBR	BNBA
34	BNGA	PNBN	PNBN	NISP	BNII
35	NISP	BBCA	BDMN	**MEGA**	BMAS
36	**MEGA**	ARTO	PNBS	**BNLI**	**BNLI**
37	BNII	BNII	**BNLI**	MAYA	**MEGA**

Source: data processed by researchers (2024)

In Table 8, we observe that PT Allo Bank Indonesia Tbk (BBHI) achieved the highest performance based on the Jensen index in the 2018-2022 period, consistently ranking in the top 3 for 3 years. BBHI is ranked in the top 3 in 2018, 2020 and 2021. PT Bank KB Bukopin Tbk (BBKP) and PT Bank

Mayapada Internasional Tbk (MAYA) had the weakest performance by the Jensen index, consistently ranking in the bottom 3 for 2 out of the last five years from 2018 to 2021.

Table 8. Banking Company Stock Performance Ranking based on the Jensen Index 2018-2022

Ranking	Stock Code				
	2018	**2019**	**2020**	**2021**	**2022**
1	MAYA	ARTO	AGRO	**BBHI**	PNBN
2	**BBHI**	BBMD	**BBHI**	BBYB	BMRI
3	MEGA	BNLI	BBKP	BNBA	BBNI
4	BTPN	MAYA	BNLI	BINA	BNGA
5	BACA	MEGA	BNII	ARTO	BBRI
33	BINA	AGRO	BDMN	PNBN	BBKP
34	MCOR	BJBR	BBNI	BACA	BNBA
35	BSIM	AGRS	BKSW	BNLI	BBYB
36	AGRO	BDMN	BBMD	**BBKP**	ARTO
37	**BBKP**	BVIC	**MAYA**	**MAYA**	AGRO

Source: data processed by researchers (2024)

Discussion

Based on the results of the analysis of the stock performance of banking companies during the 2018-2022 period using the Sharpe, Treynor, and Jensen indices, significant variations in stock performance were found, reflecting differences in risk and return. The Sharpe index, which measures returns relative to total volatility (Yunita, 2023), shows that PT Bank Jago Tbk (ARTO) had the best performance in 2019 with a Sharpe value of 208.29, signaling very high returns compared to the risks faced. In contrast, PT Bank Maybank Indonesia Tbk (BNII) recorded the worst performance in 2022 with a Sharpe value of -31.72, indicating stock returns that are far below the risk-free rate. Some stocks such as ARTO and PT Bank Permata Tbk (BNLI) have consistently ranked at the top for several years, showing stability and effectiveness in risk management.

Meanwhile, the Treynor index which focuses on systematic risk/market beta (Hartono, 2017) revealed that PT Bank Mandiri Tbk (BMRI) took the top spot in 2018 and 2022 with the highest Treynor value, reflecting superior returns relative to the market risk faced. In contrast, BNII again showed the worst performance in 2019 with a negative Treynor value of -344.29, signaling the stock is highly susceptible to market risk and generates poor returns. These results are consistent with BMRI's reputation as one of the most highly profitable banks in Asia (Octaviano, 2023), capable of effectively managing market risk and generating competitive returns.

Analysis using the Jensen index, which measures alpha or excess return beyond the influence of market risk (Tandelilin, 2017), shows that PT Bank Jago Tbk (ARTO) recorded the highest Jensen value in 2019 at 15.79, signaling excellent investment management capabilities in creating added value. In contrast, PT Bank Mayapada Internasional Tbk (MAYA) experienced the worst performance in 2021 with a Jensen value of -0.89, indicating a failure to outperform the market benchmark. PT Allo Bank Indonesia Tbk (BBHI) also stood out by consistently being at the top of the rankings for three years, reflecting managerial excellence and effective investment strategies.

The three indices provide complementary perspectives in assessing the performance of banking stocks. The Sharpe index measures returns relative to total risk, the Treynor index assesses returns based on market risk, and the Jensen index assesses managerial excellence through alpha. Stocks such as ARTO and BMRI that have consistently outperformed across various indices indicate effective risk management and investment strategies, while stocks such as BNII and MAYA that have performed weakly indicate the need for better strategy evaluation and risk management.

The period 2018-2022 was also characterized by various external challenges, including the COVID-19 pandemic that caused market volatility and global economic uncertainty. Fluctuations in index values in 2020 and 2021 reflected the impact of these volatile market conditions. Banks that were able to adapt quickly and manage risks effectively managed to maintain or even improve their performance amidst this uncertainty.

CONCLUSION

The research findings indicate that stock performance, as measured by the Sharpe, Treynor and Jensen indices showed varying results, including both positive and negative outcomes. According to the rankings on these indices, ARTO and BNLI demonstrated the best performance in the last 5 years based on the Sharpe index, while BMRI stood out based on the Treynor index, and BBHI excelled based on the Jensen index during the same period. These results provide valuable insights for investors to consider their investments, taking into account the highest performance rankings across these three different indexes, namely Sharpe, Treynor, and Jensen. It's important to note that this research is confined to banking companies listed on the IDX from 2018 to 2022. It is recommended that future research include companies from various other sectors for a more comprehensive analysis.

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