

14th ISCA 2024**Analysis Investment Performances using Sharpe Ratio: Study Case at PT Asuransi Jiwa Taspen**Arti Candra Kusuma^{1*}, Ekaningtyas Widiastuti², Najmudin³¹Jenderal Soedirman University, arti.kusuma@mhs.unsoed.ac.id Indonesia²Jenderal Soedirman University, ekaningtyas.widiastuti@unsoed.ac.id , Indonesia³Jenderal Soedirman University, Najmudin@unsoed.ac.id ,Indonesia

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ABSTRACT

Investment is one of the main activities in pension fund management companies. The better the investment performance of the pension fund management company indicates that the company is able to manage participant funds properly. PT Asuransi Jiwa Taspen as one of the pension fund management companies in Indonesia needs to analyze investment performance to see how well the investment performance of PT Asuransi Jiwa Taspen is. The method used to analyze investment performance uses the sharpe ratio measurement method, where the results of investment performance at PT Asuransi Jiwa Taspen will be compared with the investment performance of BPJS Ketenagakerjaan. This comparison is carried out to see the extent of the investment performance of PT Asuransi Jiwa Taspen compared to other pension and insurance fund management companies. The analysis results show that PT Asuransi Jiwa Taspen's investment performance is superior to the performance of BPJS Ketenagakerjaan, where the sharpe ratio value at PT Asuransi Jiwa Taspen is 2,42, while BPJS Ketenagakerjaan is only 2,07. This is due to the difference between the strategy and portfolio composition of PT Asuransi Jiwa Taspen and BPJS Ketenagakerjan. Although PT Asuransi Jiwa Taspen investment performance is superior, BPJS Ketenagakerjaan investment performance can still be said to be good because the sharpe ratio value is more than one. Portfolio diversification plays an important role in maintaining the balance of return and risk levels so that investment performance in the two companies produces good results.

Keywords: *investment performance, portfolio optimization, portofolio diversification, return, risk*

1. Introduction

Investment is one of the activities that affect the company's prospects in the future (Fama & French, 1998). Based on OJK Financial Literacy in 2016, investment activities are one of the main activities that must be carried out by pension and insurance fund management companies. Investment is one way of managing participants' pension and insurance funds, which means that investment performance has an important role. Good investment performance shows that the company is able to manage participants' funds optimally. PT Asuransi Jiwa Taspen as one of the pension and insurance fund management companies in Indonesia must also carry out investment activities. In its investment activities, PT Asuransi Jiwa Taspen practices portfolio diversification or allocates investment funds to several types of assets. This portfolio diversification is done to reduce uncertainty over the risks that can

occur (Markowitz, 1991).

Some previous studies also say that portfolio diversification is proven to have a positive effect on investment performance. Among them is the research of Huang et al (2024) which states that portfolio diversification tends to improve investment performance and reduce risk. In addition, Candidacy et al (2022) also said the same thing, namely that the company's financial performance increases if it diversifies its portfolio into various assets.

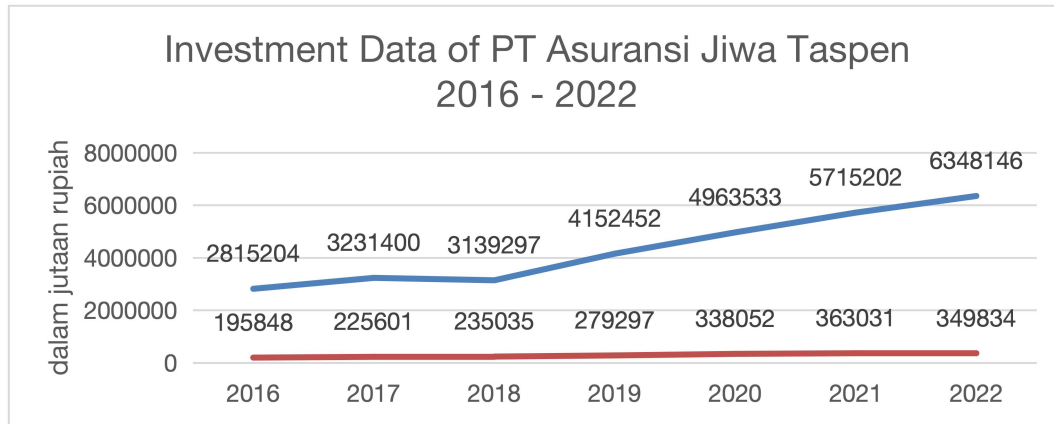


Figure 1.1 Investment Data of PT Asuransi Jiwa Taspen 2016 - 2022

Based on Figure 1.1, the amount of funds invested in the range of 2016 - 2022 ranges from 2.8 trillion to 6.3 trillion rupiah. With investment returns ranging from 195 billion to 349 billion. The amount of investment funds is invested in several types of assets in accordance with the composition of the portfolio prepared with different allocation weights between assets. When viewed, in 2022 there was a decrease in investment returns from 363 billion in 2021 to 349 billion in 2022. Even though the amount of funds invested in 2022 is 650 billion greater than in 2021, this shows that the increase in the amount of investment funds is not always followed by an increase in investment returns. The phenomenon needs to be analyzed further to find out how the investment performance of PT Asuransi Jiwa Taspen.

To provide broader analysis results, the investment performance of PT Asuransi Jiwa Taspen will be compared with the investment performance of BPJS Ketenagakerjaan. This comparison is carried out to see the extent of the investment performance of PT Asuransi Jiwa Taspen when compared to similar companies. As well as which portfolio composition provides efficient results between the two companies.

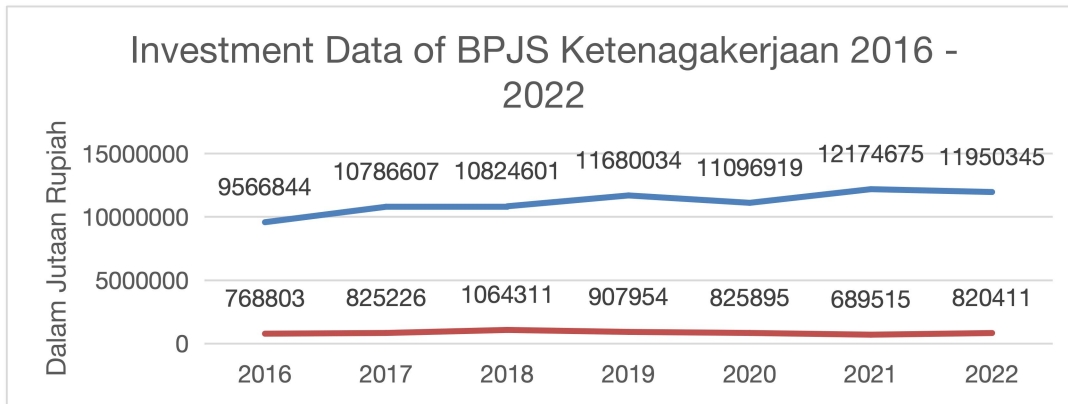


Figure 2.2 Investment Data of BPJS Ketenagakerjaan 2016 - 2022

Based on the BPJS Ketenagakerjaan annual report, the amount of funds invested in the range of 2016 - 2022 ranged from 9.5 trillion to 12.9 trillion rupiah, with investment returns ranging from 768 billion to 1.06 trillion rupiah. The amount of funds invested by BPJS Ketenagakerjaan is almost 3 times greater than PT Asuransi Jiwa Taspen, so the results obtained each year are also greater. Just like PT Asuransi Jiwa Taspen, the amount of investment funds is also invested in several types of assets in accordance with the composition of the portfolio prepared with different allocation weights between assets.

Based on Figure 1.2, it can be seen that the movement of the amount and investment returns of BPJS Ketenagakerjaan from 2016 - 2022 tends to fluctuate more than PT Asuransi Jiwa Taspen. So it is necessary to conduct a more in-depth analysis of investment performance at BPJS Ketenagakerjaan, to see whether the amount of funds invested in several types of assets in accordance with the composition of the prepared portfolio can provide good performance, and what the results will be if the investment performance is compared with PT Asuransi Jiwa Taspen.

This research is important to find out the performance of the investment portfolio of PT Asuransi Jiwa Taspen compared to other pension fund companies, namely BPJS Ketengenagakerjaan. In addition, investment performance is also one of the indicators that affect firm value, as stated by Islam et al. (2021) which states that investment is a major factor determining the company's financial performance. The same thing was also revealed by Salehi et al. (2022) who said that investment efficiency has a positive relationship with firm value. By knowing how well investment performance is, decision making related to investment strategy and policy can be based on the results of this performance.

2. Literature Review

2.1 Modern Portfolio Theory

Modern portfolio theory is a theory coined by Harry Markowitz in 1952. Where this theory says that good investment performance can be achieved by portfolio diversification, or allocating investment funds to several types of assets. The concept of portfolio diversification arises based on the analogy of “do not put all eggs in one basket” because if

the basket falls, then all the eggs will break. This analogy is similar to investment, where if you put all investment funds in the same asset, the potential loss will be very large, because if the asset experiences a loss the risk that will be faced is very large.

2.2 Investment

Investment is a process of allocating funds or other resources in the hope of obtaining future profits (Bodie et al, 2014). According to Ross et al (2018) investment is the process of buying an asset with the hope that the asset will provide future profits. Based on this understanding, investment can be interpreted as the process of distributing funds into several instruments with the aim of getting returns in the future.

Investment performance is a measure of how well an investment produces the expected return (Ross et al, 2018). Investment performance describes the results of investment activities that have been carried out. Investment performance is generally seen based on the rate of return on investment, if the rate of return on investment is high then the investment performance is good, and vice versa. Good investment performance can be obtained one of them by diversifying the portfolio in preparing the portfolio composition. This portfolio diversification can balance the level of return and risk, so that companies can maximize returns but also keep the risk within reasonable limits. Investment performance plays an important role in pension fund and insurance companies. The better the investment performance, indicating that the company is able to manage participants' milim funds well, which will have an impact on the long-term welfare of participants.

3. Research Methodology

The approach used in this research is a case study method with data analysis used is descriptive method and quantitative method on investment portfolio data of PT Asuransi Jiwa Taspen and BPJS Ketenagakerjaan in the period 2016 - 2022. For the analysis of investment performance itself, this study uses the sharpe ratio calculation method to measure investment performance both at PT Asuransi Jiwa Taspen and BPJS Ketenagakerjaan. Where the formula for calculating the sharpe ratio is as follows:

$$Sharpe\ Ratio = \frac{R_p - R_f}{\sigma_p}$$

Description:

R_p: Average rate of return on investment portfolio

R_f: Risk free rate of return

σ_p : standard deviation of portfolio returns (shows risk)

This measure is used to measure investment performance by analyzing the level of investment return in accordance with the risk. This ratio helps to understand whether the investment return is proportional to the risk taken. The greater the calculation result of the Sharpe ratio, the better the investment performance.

4. Results

4.1. Analysis Investment Performance on PT Asuransi Jiwa Taspen

Table 4.1.1 Average Return, Risk, and Average Asset Allocation PT Asuransi Jiwa Taspen

Instrumen	Average Return	Risk	Average Asset Allocation
Deposito	6,41%	4,56%	22,20%
Efek Utang	7,08%	1,65%	33,53%
Efek	13,25%		
Ekuitas		7,87%	2,11%
Reksadana	5,92%	2,24%	37,67%
Sukuk	8,28%	5,09%	2,03%
KIK EBA	7,04%	2,73%	4,54%
MTN	6,08%	2,72%	0,57%

Based on Table 4.1.1, the largest investment allocation during the period 2016 - 2022 is investment placement in mutual fund instruments of 37,67%, followed by debt securities instruments of 33,53%, and deposits of 22,2%. While the rest is distributed to several investment assets, namely sukuk, KIK EBA, MTN, and equity securities. Based on the composition of the investment portfolio, it shows that PT Asuransi Jiwa Taspen prioritizes investment security by choosing to invest most of its funds in instruments with high stability. This is shown by mutual fund instruments and debt securities which are the main pillars in the composition of PT Asuransi Jiwa Taspen's portfolio. Although these two instruments tend to have an average return that is not so high, the level of risk from mutual funds and debt securities is also quite low, so this helps PT Asuransi Jiwa Taspen to reduce risk and maintain long-term investment security.

Table 4.1.2 Sharpe Ratio PT Asuransi Jiwa Taspen

Average Return	6,69%
BI Rate	4,84%
Standar Deviation	0,76%
Sharpe Ratio	2,42

Based on the results of the Sharpe Ratio calculation carried out, it shows that the sharpe ratio at PT Asuransi Jiwa Taspen is 2,42. Investment performance can be said to be good if the sharpe value is more than one (Bodie et al, 2014). The same thing was also said by Hu (2021) and Wang & Aste (2021) who stated that a sharpe value of more than one indicates that investment performance is at a fairly good level. Referring to this, the investment performance of PT Asuransi Jiwa Taspen can be said to be quite good and adequate.

4.2 Analysis Investment Performance on BPJS Ketenagakerjaan

Table 4.2.1 Average Return, Risk, Average Asset Allocation BPJS Ketenagakerjaan

Instrument	Avarage Return	Risk	Avarage Asset Allocation
Deposito	7,8%	2,54%	23,44%
Saham	8,1%	3,60%	15,57%
Reksadana	3,5%	3,18%	6,50%
EBA	9,5%	3,43%	4,70%
Sukuk	7,7%	0,46%	12,07%
Obligasi	8,3%	1,36%	38,99%
Penyertaan		5,82%	
Langsung	6,7%		0,76%
Properti	4,9%	3,36%	0,76%

Based on Table 4.2.1, the largest BPJS Ketenagakerjaan investment allocation during the period 2016 - 2022 is investment placement in bond instruments of 38,99%, followed by deposit instruments of 23,44%, stocks of 15,27%, and sukuk of 12,07%. While the rest consists of mutual funds at 6,5%, direct investment and property at 0,76% each, and the smallest allocation weight is EBA assets at 4,7%. The instruments that are the main pillars in the composition of the BPJS Ketenagakerjaan portfolio are bonds and deposits, where these two instruments have the largest allocation weight. This shows that BPJS Ketenagakerjaan utilizes this bond instrument to minimize the level of risk and secure investment in the long term because the return on bonds tends to be stable and the risk tends to be low. This is in accordance with research conducted by Manurung & Terzaghi (2024) which states that bonds are the right instrument in risk management. Although there is still a possibility of default, the risk of bonds tends to be lower than other investment instruments.

Table 4.2.2. Sharpe Ratio BPJS Ketenagakerjaan

Avarage Return	7,6%
BI Rate	4,84%
Standar Deviation	1,34%
Sharpe Ratio	2,07

Based on the results of the Sharpe Ratio calculation carried out, it shows that the sharpe ratio at BPJS Ketenagakerjaan is 2,07. Investment performance can be said to be good if the sharpe value is more than one (Bodie et al, 2014). The same thing was also said by Hu (2021) and Wang & Aste (2021) who stated that a sharpe value of more than one indicates that investment performance is at a fairly good level. Referring to this, investment performance in BPJS Ketenagerkajaan can be said to be quite good and adequate.

4.3 Comparative Analysis of Investment Performance of PT Asuransi Jiwa Taspen and BPJS Ketenagakerjaan

Table 4.3.1 Comparison of Investment Performance of PT Asuransi Jiwa Taspen and BPJS

Ketenagakerjaan

Indikator Kinerja Investasi	PT Asuransi Jiwa Taspen	BPJS Ketenagakerjaan
Return portofolio	6,89%	7,6%
Standar Deviasi Portofolio	0,76%	1,34%
Sharpe Ratio	2,42	2,07

Based on table 4.3.1, the sharpe value at PT Asuransi Jiwa Taspen shows a result of 2,42, while the sharpe value at BPJS Ketenagakerjaan shows a result of 2,07. This shows that the investment performance of PT Asuransi Jiwa Taspen in 2016-2022 is superior to the investment performance of BPJS Ketenagakerjaan in 2016-2022. When viewed, the portfolio composition at PT Asuransi Jiwa Taspen and BPJS Ketenagakerjaan is quite different. Although the two companies achieved a fairly good performance with a sharpe ratio level of more than one, there are differences in the structure of the investment portfolio prepared which makes the investment performance of PT Asuransi Jiwa Taspen to the investment performance of BPJS Ketenagakerjaan

Based on table 4.3.1, the average portfolio return on PT Asuransi Jiwa Taspen is 6,89%, while for BPJS Ketenagakerjaan the average return is 7,6%. As for the portfolio risk itself, PT Asuransi Jiwa Taspen has a standard deviation of 0,76%, while BPJS Ketenagakerjaan is 1,34%. When viewed, BPJS Ketenagakerjaan chooses a more aggressive strategy than PT Asuransi Jiwa Taspen by BPJS Ketenagakerjaan allocates investment funds to assets with high volatility with a large enough weighting compared to PT Asuransi Jiwa Taspen. Although when viewed, the return rate of BPJS Ketenagakerjaan is higher than PT Asuransi Jiwa Taspen, but when compared to the level of risk, PT Asuransi Jiwa Taspen has better investment performance. This means that the investment portfolio of PT Asuransi Jiwa Taspen is more efficient in balancing the level of return and risk.

Although PT Asuransi Jiwa Taspen has a lower investment performance than BPJS Ketenagakerjaan, the performance of PT Asuransi Jiwa Taspen is still said to be good and adequate with a sharpe ratio value of more than one. Likewise with BPJS Ketenagakerjaan which also has good investment performance with a sharpe value of more than one. This shows that both PT Asuransi Jiwa Taspen and BPJS Ketenagakerjaan have managed to carry out good portfolio management in balancing return and risk by maintaining fairly good investment performance, where good portfolio management can certainly produce good performance (Farooq et al., 2022). Portfolio management at PT Asuransi Jiwa Taspen and BPJS Ketenagakerjaan certainly cannot be separated from the practice of portfolio diversification. or spread asset allocation across various investment instruments. Portfolio diversification helps companies to minimize investment risks that may occur due to economic uncertainty, as expressed by Kong et al. (2022) which states that economic uncertainty can

hinder investment activities carried out, which in turn can also have an impact on investment performance.

The results of this study are in line with modern portfolio theory initiated by Markowitz, that it is important to diversify the investment portfolio in various assets that have a low correlation to maintain a balance of risk and return levels. The application of the analogy of not putting all eggs in the same basket will help the company to reduce risk in the event of a loss in one of the instruments.

5. Conclusion

Based on the research results, the investment performance of PT Asuransi Jiwa Taspen based on the sharpe ratio results in a value of 2,42. while for the sharpe ratio results on BPJS Ketenagakerjaan produces a value of 2,07. This shows that the investment performance of PT Asuransi Jiwa Taspen is superior to the investment performance of BPJS Ketenagakerjaan. This is because BPJS Ketenagakerjaan has a more aggressive investment strategy than PT Asuransi Jiwa Taspen by allocating funds to assets that have high volatility with a greater weight than PT Asuransi Jiwa Taspen. This makes BPJS Ketenagakerjaan's risk level higher, and although the return rate is also higher than PT Asuransi Jiwa Taspen, if this return rate is compared to the risk level calculated by the sharpe ratio, it shows that BPJS Ketenagakerjaan's investment performance is lower than PT Asuransi Jiwa Taspen. So it can be said that the investment portfolio of PT Asuransi Jiwa Taspen is more effective than BPJS Ketenagakerjaan.

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