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Research pa

Investment Portfolio of Pension Funds: Regulation and Implementation

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Abstract

This study determines which pension fund investments affect the return of investment in the pension fund industry. This research is an explanatory research conducted using multiple regression with data from the monthly pension fund statistics for the March 2015 to June 2018 period. The results show that of the 19 investments that the pension fund industry can make, there are still 2 types of investments that have not yet been made and 3 types of investments exceeding the limit specified allocation. In this study, only government bonds and land investments have a positive effect on return of investment while land and building investments have a negative effect. The results of this study indicate that the regulations do not have an impact on changing the type and allocation of investment in the pension fund industry, and is still dominated by certain investments that do not have an influence on the profitability of the pension fund industry which is measured by return of investment. Therefore, further studies are needed. This study is useful for (1) the pension fund industry to be able to apply investment portfolio theory regarding the types and allocations of investments and start new types of investment that are permitted (2) for financial services authorities (financial services authority) in order to arrange regulations regarding the type and allocation of investment.

Keywords: *Portfolio investment; return on investment and pension fund.*

1. Introduction

The pension fund industry in Indonesia has undergone several changes in regulations regarding the type and allocation of investment of pension funds as shown in Table 1. The purpose of the regulations is to increase the type of investments made by the pension fund industry in Indonesia, so that the pension fund industry has many options for investing. In addition to the expanded investment type, the regulations also limit investment to a certain allocation that aims to ensure that risk can be spread over several investments with the expectations of reducing investment risk and increasing profits that can be seen in the return of investment (ROI).

Based on the regulations above, the pension fund industry can adjust its investments in accordance with the rules that have been published and can change the type and allocation of investment. However, this takes time because it cannot be changed immediately because it is bound to a contract, one of which is related to the investment period. Despite the previously mentioned, after much time since the issuing of the regulation of financial service authority No. 3 / POJK.05 / 2015, investment type still has not changed, and is still dominated by time deposits, government bonds, and other bonds. In addition to that, there are 2 pension fund investment types that are not yet in demand, namely repo and stock option contracts and central bank bonds. Implementation of financial services authority regulation no. 3 / POJK.05 / 2015 in the pension fund industry are as follows [3, 8].

Table 1: Pension fund industry allocation limits regulation

TYPE AND PROPORTION	REGULATION			
	511/KMK.06/2002	199/PMK/010/2008	19/PMK.010/2012	3/POJK.05/2015
PORTFOLIO INVESTMENT	**********	20%	20%	20%
SAVING	20%	20%	20%	20%
DEPOSIT ON CALL	20%	20%	20%	20%
TIME DEPOSIT	20%	20%	20%	20%
CERTIFICATE DEPOSIT	20%	20%	20%	20%
CENTRAL BANK BOND	20%	20%	20%	20%
GOVERNMENT BOND	20%	10%	10%	100%
SHARE	20%	20%	20%	20%
BOND	20%	20%	20%	20%
SUKUK	**********	20%	20%	20%
MUTUAL FUND	20%	20%	20%	20%
MEDIUM TERM NOTE	**********	**********	**********	10%
ASSETS BACKED SECURITY	**********	20%	20%	20%
COLLECTIVE INVESTMENT CONTRACT	**********	15%	15%	20%
STOCK OPTION CONTRACT	**********	10%	10%	20%
REPO	**********	**********	**********	20%
DIRECT PLACEMENT IN SHARE	20%	20%	20%	15%/5%
LAND	15%	15%	15%	20%
BUILDING	15%	15%	15%	20%
LAND AND BUILDING	15%	15%	15%	20%
DEBT RECOGNITION LETTER	20%	**********	**********	**********

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Table 2: Implementation of pension fund allocation

PORTFOLIO INVESTMENT	Mar-15	Jun-15	Dec-15	Jun-16	Dec-16	Jun-17	Dec-17	Jun-18
SAVING	0.15%	0.07%	0.08%	0.11%	0.08%	0.08%	0.11%	0.23%
DEPOSIT ON CALL	0.59%	1.25%	0.78%	0.57%	0.47%	0.83%	0.46%	0.82%
TIME DEPOSIT	29.82%	29.16%	29.94%	25.17%	25.07%	26.74%	26.33%	26.30%
CERTIFICATE DEPOSIT	0.00%	0.02%	0.02%	0.33%	0.47%	0.64%	0.62%	0.54%
CENTRAL BANK BOND	0.00%	0.00%	0.00%	0.00%	0.19%	0.00%	0.00%	0.00%
GOVERNMENT BOND	16.65%	16.52%	17.88%	22.13%	23.75%	23.27%	22.93%	22.66%
SHARE	15.86%	14.97%	13.65%	13.42%	12.55%	12.35%	12.42%	11.53%
BOND	20.81%	21.27%	21.56%	21.82%	21.15%	20.05%	20.71%	21.18%
SUKUK	0.61%	0.81%	0.89%	1.04%	0.85%	0.97%	1.19%	1.25%
MUTUAL FUND	6.44%	6.65%	6.54%	6.55%	6.10%	5.95%	6.25%	6.34%
MEDIUM TERM NOTE	0.00%	0.00%	0.00%	0.00%	0.03%	0.08%	0.08%	0.07%
ASSETS BACKED SECURITY	0.15%	0.11%	0.10%	0.08%	0.22%	0.23%	0.45%	0.42%
COLLECTIVE INVESTMENT CONTRACT	0.02%	0.06%	0.08%	0.06%	0.06%	0.05%	0.05%	0.05%
STOCK OPTION CONTRACT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
REPO	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DIRECT PLACEMENT IN SHARE	3.58%	3.52%	3.34%	3.54%	3.27%	3.17%	3.22%	3.43%
LAND	1.49%	1.55%	1.68%	1.55%	1.93%	1.94%	1.85%	1.58%
BUILDING	0.67%	0.75%	0.78%	0.93%	0.87%	0.86%	0.78%	0.90%
LAND AND BUILDING	3.14%	3.27%	2.69%	2.70%	2.93%	2.82%	2.55%	2.71%

If we compare Table 1 and 2, the implementation of the regulations it still turns out that there are several dominating pension fund investment types such as time deposition at 26.30%, government bonds at 22.66% and other bonds at 21.11%, and based on Table 1 the limit of the allocation that is permitted is only 20% for time deposits and bonds meaning that there are 2 investments that exceed the maximum allocation of investment. The purpose of the investment portfolio is to reduce investment risk by investing in several types of investments. If the investment is profitable, the proportion of investment can be increased in accordance with the specified limit. But if it is not profitable, it can be reduced or eliminated from the investment selection. From Table 1 regarding return on investment, it turns out that the benefits of the pension fund industry tend to decline. This has led to a research gap as well. It should have been through an investment portfolio. The pension fund industry has experienced benefits seen from return on investment. This is what attracted the researcher to conduct research on investment portfolios in the pension fund industry in Indonesia, due to the fact that the regulations apply to pension funds in Indonesia.

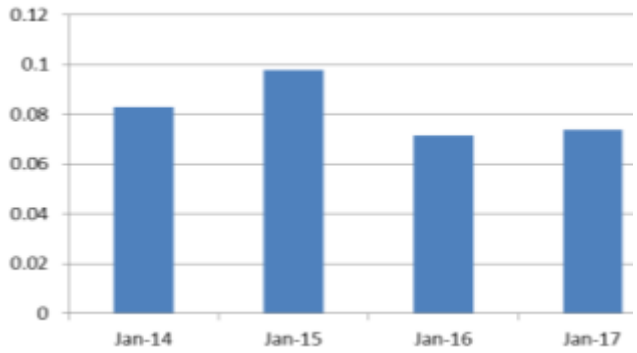

Fig. 1: Return on investment

Based on the results of [1] research, which examined which pension fund investments affect the profitability of the pension fund industry. It turns out that of the 19 pension fund investment types there were only 3 types that affected the profitability of the pension fund industry namely share, building and land-building. Investment in shares and land-building has a negative effect on profitability. It means that the more investment in shares and land-building, the more the pension fund industry experiences a loss and vice versa. While, investment in building has a positive effect on the profitability of the pension fund industry. It means that the more of buying buildings, the more profitable the industry pension fund is [1] was conducted for 36 months. Insufficient data was available because the regulation of financial service authority No. 3 / POJK.05 / 205 had just started March 31, 2018 [3-4, 8]. In [1] is the first research on the implementation of the regulation of the authority of financial services in the pension fund industry, which focuses on whether the addition of investment type to the 19 types of investment affects the profitability of the pension industry. In accordance with the expectation that the addition of investment types will make the risk more spread, where the risk of shrinking will cause profits to increase. These regulations only apply in Indonesia for pension funds in Indonesia, so until now there has been no similar research.

Based on Table 2, it can be seen that the dominant investment types are time deposits, government bonds and other bonds. But, from [1] research, it turns out that only share, building and land-building have an effect on the profitability of the pension fund industry, thus raises a research question, why there is dominant investment in time deposits, government bonds and other bonds even though it has no effect on the profitability of the pension fund industry.

Based on the above research question, the purpose of this study is to determine the type of investment that influences the return on investment of the pension fund industry, by repeating [1] research with additional data.

2. Literature Review

2.1. Investment

In [11] suggests that investment is a commitment to a number of funds or other resources, which is carried out at this time with the aim of gaining interest in the future. In [5] suggests that investment is a delay in current consumption to be included in productive assets over a period of time. These productive assets with the passage of time will increase total utility. Investment Portfolios are a set of investments [6]. In the portfolio, it must be considered which investment will be chosen and what percentage of the funds will be invested in each investment with the aim of reducing the risk to be borne. An investment portfolio is a set of investments in financial objects with the goals to be achieved being maximum profit and minimal risk. The ultimate goal of the investment portfolio is to achieve a more optimal combination of risk and profitability and decreased risk. In the pension fund industry in Indonesia, there are 19 types of investments that can be chosen with the maximum allocation of each investment as listed in Table 1 with the aim of maximizing profits and reducing risks.

2.2. Return on Investments (ROI)

Based on the decision of the director general of financial institutions number KEP-2344 / LK / 2003 concerning guidelines for preparing investment reports, a pension fund's return on investment (ROI) is the ratio of the results of investment operations to the average investment [2]. The pension fund industry consists of contractual financial institutions that attract funds from the public by entering into contracts that protect public funds against uncertainty risks. Pension funds that are collected are best invested to make a profit. Return on investment (ROI) is one form of profitability that shows a measure of the effectiveness of management in managing its investments. While, profitability [7] is a measure of the level of management effectiveness of an institution in obtaining profits from sales and investment income.

2.3. Pension Fund

There is a retirement section Under Article 1 of the law on pension funds number 11 of 1992 [9], pension funds are legal entities that manage and run pension plans that promise retirement benefits. While, in [10] suggest that pension funds are funds that are specifically collected specifically for the purpose of providing benefits to employees when they reach retirement age, die or become disabled.

3. Methodology

This study includes explanatory research with data sources using secondary data from the statistic of pension funds in March 2015 to June 2018 in the form of data return on investment, which is one type of profitability with 19 types of investments permitted for the pension fund industry [4]. Another data source is the regulation of pension funds in Indonesia. The population of all pension funds in Indonesia uses a census using a Multiple Regression Models.

ROI = β0+ β1Saving+ β2 Deposit On Call + β3 Time Deposit + β4 Certificate on Deposit + β5 Central Bank Bond + β6 Government Bond+ β7 Bond+ β8 Sukuk+ β9 Medium Term Note + β10 Share + β11 Option Contract+ β12 Mutual Fund + β13 Asset-backed security+ β14 Collective Investment Contract + β15 REPO + β16 Direct Placement in Share+ β17 Land + β18 Building+ β19 Land and Building + ε

where:
β0: Intercept
β1: Saving Coefficient
β2: Deposit on call Coefficient
β3: Time Deposit Coefficient
β4: Certificate of Deposit Coefficient
β5: Central Bank Bond Coefficient
β6: Government bond Coefficient
β7: Bond Coefficient
β8: Sukuk Coefficient
β9: Medium Term Note Coefficient
β10: Share/ stocks Coefficient
β11: Option contract Coefficient
β12: Mutual fund Coefficient
β13: Asset-backed security Coefficient
β14: Collective Investment Contract Coefficient
β15: REPO Coefficient
β16: Direct Placement in Share Coefficient
β17: Land Coefficient
β18: Building Coefficient
β19: Land and Building Coefficient
ε: error

Hypotheses of this research are as follows:
H1: Investment on Xi partially affected the profitability of pension fund
H2: All investments pension funds simultaneously affected the profitability of pension fund
Xi was types of investment in pension fund, there were 19 investment types, i from 1 to 19

3.1. Hypothesis test

3.1.1. Partial test

Ho: Xi investment had no effect on profitability of pension fund

Hi: Xi investment had effect on profitability of pension fund description: i from 1 to 19

Xi was types of investment in pension fund, there were 19 investment types, i from 1 to 19.

3.1.2. Simultaneous test

Ho: All pension fund investments simultaneously had no effect on the profitability of pension fund

Hi: At least there was one type of investment that affected the profitability of pension fund with a significant level of α = 0.05

3.2. Research Framework

The research framework is defined as follows [1].

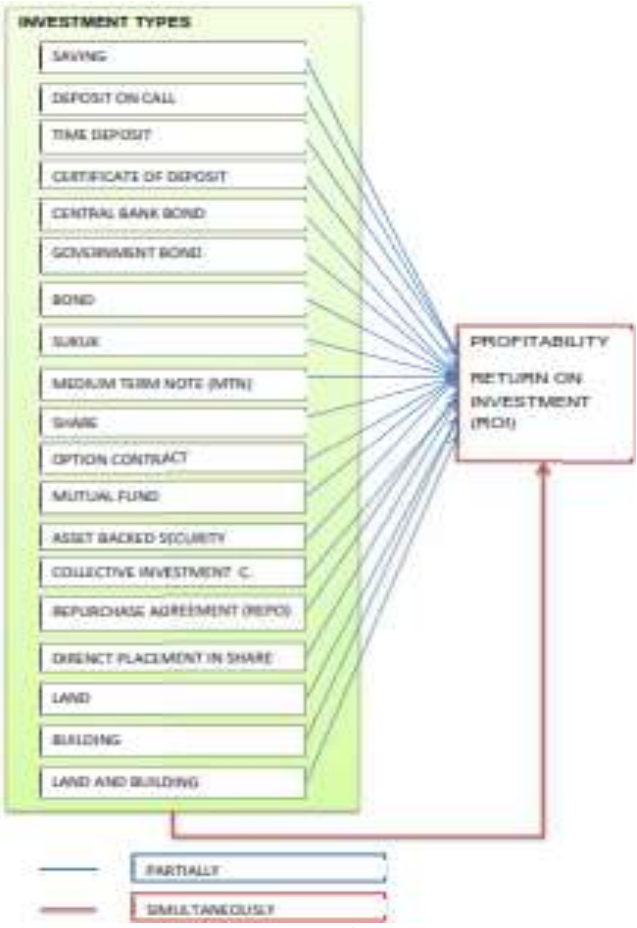

Fig. 2: Research framework

4. Results and Analysis

The research data was collected in 36 periods from March 2015 to June 2018 [4]. It can be seen in Figure 3.

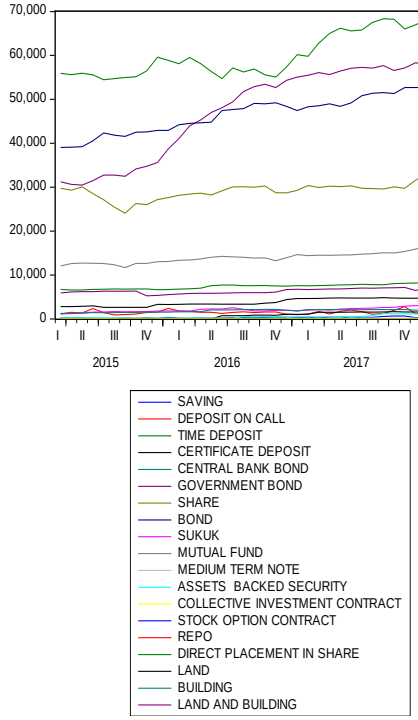

Fig. 3: Investment variables

From Figure 3, it can be indicated that the movements of all investment variables of the pension fund namely Savings, Deposit on call, Time Deposit in bank, Certificates of Deposit, Central Bank Bond, Government Bond, Bonds, Sukuk, Medium Term Notes, share, Contract Option, Mutual Fund, Asset Backed Securities, Collective Investment Contract, Repurchase Agreement (REPO), Direct Investment, Land, Building, Land and Building while Profitability as measured by ROI can be seen Figure 1.

Based on research data, investment in option contract and Investment on Repurchase Agreement (REPO) are omitted from the calculation because the data do not exist. Accordingly, it will make the data become abnormal. Investments in Central Bank Bonds is omitted because the data are minimal and not normal. Investments in savings, deposit on call, Collective investment contracts are omitted because the data are not normal. However, we just use Time Deposit in bank, Certificates of Deposit, Government Bond, Share, Bonds, Sukuk, Mutual Fund, Medium Term Notes, Asset backed security, Direct Investment in share, Land, Building, Land and Building.

Of the 19 pension fund investments, only 13 are processed data for pension funds because the data is non-existent or abnormal or omitted due to it being too little. From 13 pension fund investments after processing, there are 9 pension fund investments, time deposit investments, bonds, sukuk, Mutual fund issued because there is a multi collinence problem. There is no heterocedasticity problem, but there is an auto correlation problem. So, there are 9 pension fund investments as seen in the 19 pension fund investment types, only 13 pension fund investment types are processed, because the data is missing or abnormal or omitted because there are too few. From 13 investment pension funds after processing, there are 9 pension fund investment types, investment time deposits, bonds, sukuk, mutual funds issued because there is a multicolleens problem. There is no heterocedasticity problem but there is an auto correlation problem, so there are 9 pension fund investment types as seen in Table 3.

Table 3: Variable, coefficient and conclusion

Variable	Coefficient	t-Statistic	Value	Conclusion
C	0.014223	3.481659	0.0083	
D(CERTIFICATE_DEPOSIT)	-2.78E-05	-1.463226	0.1816	Ho accepted
D(GOVERNMENT_BOND)	1.23E-05	3.174937	0.0131	Ho rejected
D(SHARE)	-7.71E-06	-3.073568	0.0153	Ho accepted
D(MEDIUM_TERM_NOTE)	-7.39E-05	-0.640136	0.5400	Ho accepted
D(ASSETS__BACKED_SECURITY)	-6.06E-05	-2.192897	0.0597	Ho accepted
D(DIRECT_PLACEMENT_IN_SHAR)	-0.000160	-4.789846	0.0014	Ho rejected
D(LAND)	2.33E-05	2.126738	0.0661	Ho accepted
D(BUILDING)	-1.40E-05	-0.553166	0.5953	Ho accepted
D(LAND_AND_BUILDING)	-8.05E-05	-6.666346	0.0002	Ho rejected

From Table 3, it can be seen in the value column where only government bond, direct placement in share and land-building affect the return on investment until Ho is rejected. Certificate deposit, share, medium term note, assets backed security, land and building have no effect on return on investment, so Ho is accepted. Government bond has a positive effect on return on investment, meaning that if investment in return on investment increases, then return on investment also increases. Direct placement in share and land-building has a negative effect on return on investment, meaning that if investment in direct placement in share and land-building increases, the return on investment will decrease, the profitability seen in investment on investment decreases.

Table 4: R-square and F test

	R-Value	p-Value	Conclusion
R-square	0.952201		
F statistical	17.70749	0.00229	Ho. rejected

From Table 4, it can be indicated that the model has a coefficient of determination of 95.22%. It means that the model is able to explain changes in return on investment. The rest is 4.78% that was influenced by other factors and it is not examined in this research.

The model equation becomes:

D(ROI) = 0.0142230377553 - 2.77567706433e-05 *D(CERTIFICATE_DEPOSIT) + 1.23175039579e-05*D(GOVERNMENT_BOND)- 7.71407737934e-06*D(SHARE)- 7.39100287266e-05*D(MEDIUM_TERM_NOTE)-6.0565313116e-05*D(ASSETS__BACKED_SECURITY) 0.000160255942815*D(DIRECT_PLACEMENT_IN_SHAR) + 2.32660059649e-05*D(LAND)- 1.39538972069e-05*D(BUILDING)- 8.04878466841e-05*D(LAND_AND_BUILDING)

5. Conclusion

5.1. Discussion

Based on the results of the study, it can be seen that the types of investment that affect return on investment are government bond with a positive influence and direct placement in share and land-building with a negative influence on return on investment. Table 1 contains the limit of the allocation of investment in government bonds that is equal to 100%, meaning that the pension fund industry is permitted to invest in government bonds from all pension funds collected. Rules / regulations of financial services authority no. 03 / POJK.05 / 2015 is in accordance with this research [3, 8].

Table 1 lists the allocation of investment in Direct placement in share that is equal to 15% if done in institutions in Indonesia and by 5% if done abroad, the rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 2015 in accordance with this research which reduces the proportion of investment in direct placement in share from the previous 20% to 15% and 5%. There should be a regulation that reduces the allocation of investment in direct placement in share to the minimum or not allowed to invest in direct placement in share [3, 8].

Table 1 contains the allocation of the land-building investment limit which is 20%. The rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 2015 increased the proportion from 15%. Rules / regulations of financial services authority no. 03 / POJK.05 / 2015 is not in accordance with the results of this study where the effect of land-building with return on investment is negative, the allocation of permitted investment is as low as possible or eliminated from the type of investment permitted for the pension fund industry should be as low as possible [3, 8].

This model has a difference with the [1]. The difference is seen from the amount of data used, the amount of data on the normal type of investment, the handling of multicollinierity problems not using logarithms, the number of variables omitted due to non-linearity problems, the number of types of pension fund investments processed by the data different types of investments that affect return on investment. In [1] research influences share and

land-building with negative influences and building with positive relationships, but in this study the effect on return on investment is government bonds with positive influence, direct placement in share and land-building with influence negative on return on investment. The equation with [1] research is the type of investment, Land and Building has a negative effect on return in the investment.

There are 19 types of investment that are permitted based on the rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 20 Table 1 contains the limit of the proportion of investment in government bonds that is equal to 100% meaning that the pension fund industry is permitted to invest in government bonds from all pension funds collected. Rules / regulations financial services authority no. 03 / POJK.05 / 2015 is in accordance with this research [3, 8].

Table 1 lists the proportion of investment in Direct placement in share that is equal to 15% if done in companies in Indonesia and by 5% percent if done abroad, the rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 2015 in accordance with this research which reduces the proportion of investment in direct placement in share from the previous 20% to 15% and 5%. Hopefully there are regulations that reduce the proportion of investment in direct placement in share to the minimum or not allowed to invest in direct placement in share [3, 8]. Table 1 contains the proportion of the land-building investment limit is 20%., The rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 2015 increases the proportion from 15%. Rules / regulations financial services authority no. 03 / POJK.05 / 2015 is not in accordance with the results of this study where the effect of land-building with return on investment is negative [3, 8]. The permitted allocation of permitted investment should be as low as possible or eliminated from the type of investment permitted for the pension fund industry.

The pension fund industry has not utilized investment in repurchase agreements (REPO). There are some first possibilities of knowing the investment process, but are not interested and the second does not have knowledge about investing in repurchased agreements. While the stock option contract, before and after the rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 2015 has not been attractive for the pension fund industry [3, 8]. Pension funds still place funds on popular investments, the process is easy, easy to liquidate or easily transferable without requiring a high cost, easy to sell and does not depend on the tastes of buyers. There is a need education about the process, risks and benefits of each investment. Regarding the maximum allocation of investment allowed. There are investments that have no effect, have a positive or negative effect on return on investment. So, even if the maximum allocation of investment is made, it is useful to spread risk in some places but not useful if the effect of investment types on return on investment is negative.

5.2. Conclusion

Based on the research results, the rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 2015 [3, 8].

a. The pension fund industry in its implementation exceeds the maximum allocation of investment in several types of investment. Every regulation must have a license so that the pension fund industry carries out investment to get a high return on investment.
b. The pension fund industry has implemented an investment portfolio. But with 19 types of investments, the pension fund industry still has not placed funds on the stock option contract and repurchase agreement, the selection of investment type is the prerogative right of the pension fund industry.
c. Based on the results of this study, there is still an allocation of investment placements in pension funds that are not suitable because they negatively affect return of investment so this type of investment should be omitted from the types of pension fund investments.

From the findings above, it is suggested as follows:

a. The Financial Services Authority amend the rules / regulations of the Financial Services Authority no. 03 / POJK.05 / 2015 to be without the maximum limit of the allocation of the type of investment [3, 8].
b. The pension fund industry begin to learn to place funds not only on investments that are popular and commonly used.
c. Residents of pension fund participants are to monitor investments made by the pension fund industry so that the funds placed are safe.
d. Use data over a longer period, use different methods, use a type of pension fund to enrich knowledge about investment portfolios in the pension fund industry This study be repeated the previous research with different emphases, and only investments in land-building that had similarities with [1] research.

References

[1] Alfiana, 2018, The Influence of Portfolio Investment of Pension Fund to Profitability of Pension Fund Industry in Indonesia since the implementation of Authority of Financial Service Regulation, Proceedings of the 5th International Conference Business and Banking.
[2] Departemen Keuangan Republik Indonesia, 2003, Keputusan Direktur Jendral Lembaga Keuangan Nomor: KEP-2233/LK/2003 tentang Pendoman Penyusunan Laporan Investasi Dana Pensiun.
[3] Financial Service Authority, 2015 Pension Fund Statistic, https://www.ojk.go.id/id/kanal/iknb/data-dan-statistik/dana-pensiun/Pages/Ikhtisar-Data-Keuangan-Dana-Pensiun-Periode-Januari---Desember-2015.aspx.
[4] Financial Service Authority, 2018, Pension Fund Statistic, https://www.ojk.go.id/id/kanal/iknb/data-dan-statistik/dana-pensiun/Pages/Statistik-Dana-Pensiun---Februari-2018.aspx.
[5] Hartono, J., 2016, Teori Portofolio dan Analisi Sinvestasi, BPFE Publishing.
[6] Husnan, S., 2009, Teori Portofolio, Sekolah Tinggi Ilmu Manajemen. YKPN Publishing.
[7] Kasmir, 2013, Pengantar Manajemen Keuangan. Predana Media Publishing.
[8] Otoritas Jasa Keuangan, 2015, Peraturan Otoritas Jasa Keuangan no. 3/POJK.05/2015. tentanginvestasidanapensiun.
[9] Pemerintah Republik Indonesia, 1992, Undang Undangn nomor 11 tahun 1992 tentang Dana Pensiun.
[10] Rivai, V., Andria, P. V., & Ferry, N. I., 2013, Financial Institution Management, Raja Grafindo Persada, Publishing.
[11] Tandelilin, E., 2010. Portofolio dan Investasi: Teori dan Aplikasi, Kanisius Publishing.