GPIF Executive Office Investment Status and Challenges

(Summary)

The Government Pension Investment Fund (GPIF) is the executive body responsible for managing and investing pension reserves. As of June 30, 2025, it holds approximately 260 trillion yen in assets, making it one of the world's largest institutional investors. Over the 10-year period ending March 2025, GPIF achieved a return of "nominal wage growth rate +4.45%," significantly exceeding its investment target of "nominal wage growth rate +1.7%." As an executive entity, it fulfilled its role as a buffer fund to adjust the imbalance between benefits and contributions linked to wage growth rates.

However, excess returns from the policy portfolio were negative in the first five years and positive in the latter five years, resulting in a difference between the two periods. The failure to achieve the target in the first five years was partly due to the fact that the medium-term objective did not explicitly state the achievement of excess returns from the policy portfolio. However, over the latter five years, various improvements in investment processes were made to faithfully achieve the medium-term objective, which is considered a major reason why positive excess returns were achieved.

The GPIF has been assigned a unique target, distinct from overseas pension funds, of achieving a nominal wage growth rate of 1.7% with minimal risk. Therefore, taking on more risk than the basic policy portfolio is not desirable, and the GPIF has established an investment process that pays close attention to asset allocation, benchmark selection, and investment manager selection. Specifically, various innovative measures have been implemented, including a rebalancing process to control asset allocation ratios (utilizing a rapid rebalancing process with stock index futures), the selection of manager benchmarks to manage various risk levels, and the use of beta-balanced passive funds to adjust investment styles.

Investments in alternative assets are not managed as an independent asset class but within the framework of traditional asset classes. Therefore, it is essential to address operational management challenges such as measuring returns relative to traditional assets and managing risks.

Over the past decade, GPIF has actively engaged in ESG investing, and going forward, it will continue to verify the results of its investments in terms of long-term profitability while ensuring compliance with its core investment policy in light of its medium-term objectives. ESG investing is expected to be optimized, including portfolio adjustments and new selections, in line with the sustainability investment policy established in March 2025.

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1. Overview of GPIF

The Government Pension Investment Fund (GPIF) (Note 1) is an executive agency responsible for managing and investing the reserves of the Employees' Pension Insurance and National Pension systems. As of June 30, 2025, it holds approximately 260 trillion yen in assets, making it one of the world's largest institutional investors (Note 2). Japan's public pension system adopts a financing system known as the pay-as-you-go system, where pension benefits for the elderly are funded by premiums paid by the working-age population. However, due to the aging population and declining birthrate, the pay-as-you-go system faces a shortage of funds to cover pension benefits. To address this, the GPIF manages pension reserves to supplement the shortfall. This system is also referred to as a buffer fund, as it helps adjust the imbalance between insurance premiums and benefits, playing a crucial role in ensuring the fiscal stability of Japan's public pension system.

The GPIF operates in accordance with the law (Note 3), which requires that "the management of the reserve funds shall be conducted solely for the benefit of the insured, from a long-term perspective, in a safe and efficient manner." Additionally, in the medium-term objectives established every five years by the Minister of Health, Labour and Welfare in conjunction with the fiscal review period, the GPIF is required to ensure that the "real return on pension reserve funds (the return on pension reserve funds minus the nominal wage growth rate)" is at least 1.9% (Note 4) with minimal risk." The reason GPIF's investment objective is set as a figure linked to the wage growth rate is that public pension benefits are generally linked to wage growth. GPIF establishes a medium-term plan every five years in response to these requirements. Within this plan, the asset allocation ratio (referred to as the policy portfolio) is determined from a long-term perspective based on the principle of diversified investment, and pension reserve funds are managed and invested accordingly. Incidentally, GPIF's current policy portfolio consists of 25% Japanese bonds, 25% foreign bonds, 25% Japanese equities, and 25% foreign equities. The benchmarks for each asset class are referred to as policy benchmarks (Note 5), and the weighted

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⁽Note 1) Abbreviation for Government Pension Investment Fund.

⁽Note 2) The top asset holder is Norges Bank Investment Management, with total assets of approximately 284 trillion yen as of July 9, 2025.

⁽Note 3) The main laws governing GPIF investments include the Employees' Pension Insurance Act, the National Pension Act, and the GPIF Act.

⁽Note 4) The target for the period from fiscal year 2015 to 2024 is 1.7%, and the target for the five-year period starting in fiscal year 2025 is 1.9%.

⁽Note 5) The policy benchmarks for the four asset classes for the 10-year period from April 2015 to March 2025 are as follows: domestic bonds NOMURA-BPI Composite (excluding ABS), domestic equities TOPIX (including dividends), foreign bonds FTSE World Government Bond Index (excluding Japan, unhedged, yen-based), and foreign equities MSCI ACWI (excluding Japan, yen-based, including dividends). Note that starting in April 2025, the policy benchmark for foreign equities has been changed to MSCI

average of the returns of the policy benchmarks, weighted by the policy portfolio's asset allocation, is called the composite benchmark return.

GPIF raised the equity ratio of its policy portfolio from 24% (12% for Japanese equities and 12% for foreign equities) to 50% (25% for Japanese equities and 25% for foreign equities) at the end of October 2014, and the equity ratio remains at 50% as of September 2025. Additionally, regarding the determination of the policy portfolio, while the GPIF's president previously held the decision-making authority, the authority was transferred to the investment advisory committee for decisions made as of October 31, 2014, and to the board of governors for decisions made as of March 31, 2020.

As such, the continuity of investment can be observed in two aspects: first, the equity ratio has been maintained at 50% since November 2014, and second, a governance change regarding investment decision-making has been implemented, whereby the authority to determine the policy portfolio has been transferred from the GPIF president to the board of governors. This paper outlines the current status of GPIF's executive office's investment activities during the 10-year period from April 2015 to March 2025, when the third and fourth medium-term objectives were established, based on the annual report and other relevant documents (Note 6-7). Additionally, as someone who participated in part of the GPIF's decision-making process during this period (Note 8), I would like to share my personal opinions on the challenges future investments will face. The policy portfolio is decided by the board of governors, not the executive office, and this paper will not address the decision-making process for the policy portfolio (Note 9). It is worth noting that a significant governance change occurred in October 2017 with the establishment of the board of governors at GPIF. However, GPIF's governance is a complex and important topic with numerous points of contention, and I would like to address it in a separate paper at a later date. Needless to say, the views expressed in this paper are solely those of the author and do not represent the official position of the GPIF.

2. Investment Performance

How have GPIF's investment results been over the past 10 years? We will assess investment

ACWI (excluding Japan, excluding China A-shares, yen-based, including dividends, after considering GPIF's dividend tax factors). (Note 6) The third period is from April 2015 to March 2020, and the fourth period is from April 2020 to March 2025. (Note 7) Interviews were also conducted with asset management companies and other entities entrusted with asset management by the GPIF. Needless to say, this report does not include any information obtained by the author during his tenure at the GPIF. (Note 8) The author served as Deputy Chairman of the Investment Advisory Committee from April 2014 to April 2016 and as a full-time auditor and governor from October 2017 to August 2022, participating in some of GPIF's decision-making processes. (Note 9) Of course, it is true that the executive officers responsible for investment also participate in the process of establishing the policy portfolio, and that the management committee and the executive officers work together to create it. However, I would like to discuss this topic in more detail at a later opportunity, including the governance of the executive officers.

performance using two metrics, which are absolute return and relative return compared to a composite benchmark return, assuming cost-free investment in accordance with the policy portfolio.

(1) Absolute Return

Figure 1 illustrates the GPIF's investment returns over the past 10 years, along with the real return on investment, which is the difference between the nominal wage growth rate and the investment returns. Since public pension benefits are generally linked to wage growth rates, the most important return for the GPIF as a buffer fund is this real return on investment.

The real investment return over the past decade was +4.45% per annum. The first five years yielded a return of +0.33%, while the latter five years yielded a return of +8.73%, indicating a significant difference between the two periods. However, when viewed over the long term, this return significantly exceeded the investment target of +1.7% by 2.75 percentage points. During this period, capital markets remained generally strong, and the exchange rate moved in a direction that weakened the yen. As a result, the equity ratio was increased to 50% on October 31, 2014, and maintained at that level, while the proportion of foreign currency-denominated assets was raised to 50% starting in April 2020, which proved to be effective. The most important investment target, absolute return, is deemed to have been sufficiently achieved.

Figure 1. Historical Investment Returns (annual basis)

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Investment Periods	GPIF Return	Nominal Wage Growth Rate	Real Return	
2010 April - 2015 March	6.57%	0.36%	5.79%	
2015 April - 2020 March	0.93%	0.52%	0.33%	
2020 April - 2025 March	10.59%	1.29%	8.73%	
2015 April - 2025 March	5.65%	0.90%	4.45%	

(Source) GPIF annual report

(2) Relative return (against the policy portfolio)

What is the relative return, which represents the difference between the composite benchmark that could be achieved if the portfolio were managed in accordance with the policy portfolio and the actual return? The GPIF has set its policy portfolio with the objective of securing an absolute return of "nominal wage growth rate +1.7%" with minimal risk. If a higher return than the policy portfolio is achieved, pension reserves will be increased further beyond the target. Therefore, achieving a positive relative return is one of the core functions of the GPIF's executive office.

The chart on the next page illustrates the relative return over the past decade. The excess return relative to the policy portfolio over the 10-year period is -0.11%, a negative value. Breaking this down, the first five years were -0.27%, while the latter five years were positive, at +0.07%. This means that the relative return was negative in the first five years and the target was achieved in

the latter five years (Note 10).

Figure 2 shows the asset allocation factor, one of the components of the excess return rate, to the right of the excess return rate. It shows that the asset allocation factor is nearly identical to the excess return rate during the first five years. This indicates that during the first five years, the majority of the excess return rate was attributable to the difference in asset allocation ratios between the policy portfolio and the actual portfolio. It is clear that this figure is significantly larger than the individual asset effect resulting from the hiring of active management companies. In particular, equity investments are challenging to manage with substantial funds like GPIF's due to liquidity constraints when aiming for excess returns relative to the benchmark through active management, which naturally leads to a lower active management ratio and a smaller individual asset effect. For GPIF, which manages massive amounts of money, it is inevitable that the effects of asset allocation will become increasingly important.

Figure 2. Historical Investment Returns (annual basis) & Attribution Analysis

Investment Periods	GPIF Return (A)	Policy Benchmark Return(B)	Excess Return (C)=(A)-(B)	Asset Allocation Factor
2010 April - 2015 March	6.57%	6.52%	0.06%	0.06%
2015 April - 2020 March	0.93%	1.21%	-0.27%	-0.28%
2020 April - 2025 March	10.59%	10.53%	0.07%	0.01%
2015 April - 2025 March	5.65%	5.77%	-0.11%	-0.13%

(Source) GPIF annual report

However, in the latter five years, the asset allocation factor was nearly 0% (0.01% to exact), indicating that the GPIF effectively neutralized the asset allocation factor while diversifying the sources of excess returns, as will be discussed later.

Achieving excess returns relative to the policy portfolio is the core raison d'être of the current GPIF executive office. However, it is important to note that the medium-term objectives differ between the first five years and the latter five years, which requires careful consideration of how the GPIF executive office perceived the achievement of excess returns as an objective. Specifically, the medium-term objectives are expressed as shown in Figure 3 (next page).

From April 2015 to March 2020, during the third medium-term plan period, the objective was to "ensure that each asset achieves its respective benchmark return rate." However, the composite benchmark return achieved by maintaining the asset allocation ratio in line with the policy portfolio—i.e., the overall benchmark for all assets—was not explicitly set as an investment target. It can also be argued that the executive office at the time placed greater emphasis on achieving excess returns relative to the benchmark for each asset class, as outlined in the medium-term targets,

(Note 10) Incidentally, the executive management team (comprising the Chairman, CIO, and directors responsible for general affairs and planning) for the fiscal years 2015-2019 and 2020-2024 consisted of entirely different members.

rather than on generating excess returns relative to the policy portfolio (total assets) (Note 11).

Figure 3. Provisions Regarding "Ensuring Benchmark Return" in Medium-Term Objectives

The 3 rd Medium-Term Objective (2015 April - 2020 March)	Each fiscal year, strive to achieve the respective benchmark return rate (market average return rate) for each asset, and ensure that each benchmark return rate is achieved during the medium-term objective period.
The 4 th Medium-Term Objective (2020 April - 2025 March)	Each fiscal year, strive to achieve the respective benchmark return rate (market average return rate) for the entire asset portfolio and for each asset, and achieve each benchmark return rate during the medium-term objective period.
The 5 th Medium-Term Objective (2025 April - 2030 March)	From the perspective of securing market average returns, during the medium-term objective period, the overall portfolio's composite benchmark return (calculated by weighting the benchmark returns of each asset class according to their proportion in the base portfolio) shall be secured.

(3) Relative Returns (by Asset Class)

How did the relative returns of each asset class perform, compared to their benchmarks, during the period of the third medium-term objective? Figure 4 illustrates the excess returns of each asset class relative to its benchmark for each year during the medium-term objective period, from April 2015 to March 2020. As shown in Figure 4, positive and negative returns are mixed across asset classes in each year. Even over the five-year period, domestic bonds and foreign equities yielded positive returns, while foreign bonds and domestic equities yielded negative returns, indicating that excess returns relative to the benchmark returns were not consistently achieved over the five-year period.

Figure 4. Excess Returns Relative to Benchmark by Asset Class

	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019	5 Years (note)
Japanese Bond	-0.21%	+0.05%	+0.06%	+0.05%	+0.13%	+0.02%
Foreign Bond	-2.74%	+2.19%	-0.52%	+0.24%	-0.82%	-0.34%
Japanese Equity	+0.02%	+0.20%	-0.21%	-0.05%	-0.20%	-0.05%
Foreign Equity	+0.03%	-0.41%	+0.46%	-0.09%	+0.32%	+0.06%

(Note) Annual basis (Source) GPIF annual report

(Note 11) In the 2019 Fiscal Year Business Overview, it is stated that "Although it is not designated as a 'target' under the medium-term objectives set by the Minister of Health, Labour and Welfare, when comparing the overall return on assets under management over the five-year period with the benchmark return, the market value ratio of domestic bonds was lower than the benchmark, resulting in a negative return of -0.27%."

From 2020 onwards, in addition to the target of "ensuring benchmark returns for each asset class" that was set for the five years up to fiscal 2019, the target of "ensuring benchmark returns for the overall portfolio" has been explicitly stated, and ensuring returns in line with the policy portfolio has been added as an investment objective. Figure 5 illustrates the excess returns of each asset class relative to the benchmark over the five-year period from fiscal year 2020 to fiscal year 2024. Also, over this five-year period, the excess returns for each asset class were a mix of positive and negative (Note 12), with bonds showing positive returns and stocks showing negative returns over the five-year period (note that this includes the results of alternative assets).

Figure 5. Excess Returns Relative to Benchmark by Asset Class

	Fiscal 2020	Fiscal 2021	Fiscal 2022	Fiscal 2023	Fiscal 2024	5 Years (note)
Japanese Bond	+0.02%	+0.23%	-0.09%	+0.20%	+0.26%	+0.12%
Foreign Bond	+1.63%	+0.41%	+0.44%	+0.51%	+0.09%	+0.61%
Japanese Equity	-0.59%	+0.13%	-0.27%	+0.07%	+0.09%	-0.11%
Foreign Equity	-0.79%	-0.90%	-0.05%	-0.57%	-0.26%	-0.51%

(Note) Annual basis (Source) GPIF annual report

(4) Changes in Investment Objectives

As mentioned earlier, the most important objective of the GPIF over the past 10 years has been to achieve an absolute return of "nominal wage growth rate +1.7%" over the long term, and the policy portfolio has been set accordingly. By managing the portfolio in accordance with the policy portfolio, the target absolute return can be achieved. If excess returns are obtained, these returns can be added to the target return. Over the five-year period from April 2020 to March 2025, an annual excess return of 0.07% was achieved. This figure is by no means small. When converted to monetary value using the average balance of 216 trillion yen (Note 13), this excess return resulted in an increase of approximately 760 billion yen in the balance, demonstrating significant investment benefits for the public.

As confirmed in Figure 3, however, the medium-term objective for the 10-year period from April 2015 was to "ensure that each asset achieves its respective benchmark return rate in each fiscal year." There is not necessarily a clear link between this goal and the more important investment objective of achieving excess returns relative to the base portfolio. Rather, the pursuit of achieving excess returns for each asset on an annual basis could hinder the achievement of excess returns

⁽Note 12) However, foreign bonds have consistently achieved positive excess returns over the five-year period. On the other hand, foreign stocks have consistently recorded negative excess returns over the five-year period, resulting in a stark contrast.

⁽Note 13) The average value of the year-end balances over the five-year period from March 2021.

relative to the policy portfolio. For example, active managers of foreign bonds may increase their positions in bonds with relatively low credit ratings in an effort to achieve excess returns, thereby taking on significant credit risk. Similarly, active managers of foreign stocks may engage in investment activities aimed at achieving excess returns for other reasons, which could simultaneously increase such risks. This could lead to excessive credit risk, country risk, and foreign exchange risk, among others, in an effort to achieve excess returns in each asset class, potentially causing the overall portfolio risk to deviate significantly from the base portfolio and disrupting balance. In other words, while striving for partial optimization, there is a risk that overall optimization may be hindered. From the perspective of achieving excess returns relative to the base portfolio, strongly focusing on achieving relative returns relative to the benchmark for each asset class is not necessarily desirable.

Given these challenges, as of April 2025, the previous medium-term objective of "ensuring the benchmark return rate for each asset class in each fiscal year" has been removed, and only the target of "ensuring the composite benchmark return rate for the entire asset portfolio over the medium-term objective period" remains. This change is considered an appropriate adjustment, as it aligns the investment decisions of the executive office with the long-term objective of achieving absolute returns, which is the most important investment objective of the GPIF.

3. GPIF's Unique Risk Management

The inclusion of the statement "to ensure a real investment return with minimal risk" in the medium-term objectives is a key characteristic of GPIF's investment activities. Many overseas public pension funds set their investment objectives by defining the basic level of risk and then seeking to maximize investment returns. For example, Canada's CPPIB (Note 14) has defined its investment objective as "maximizing returns without taking excessive risk of loss on a portfolio defined as 60% global equities and 40% Canadian government bonds."

Furthermore, under its institutional framework, GPIF is prohibited from directly investing in equities and is required to outsource asset management to investment managers (Note 15). While many public pension funds worldwide have a high proportion of in-house asset management, GPIF has no choice but to operate as a large fund of funds (FoFs) primarily dependent on external management. As of the end of March, 2025, in-house management accounted for approximately 22.5 trillion yen in traditional assets, representing about 9% of total assets. GPIF outsources over 90% of its assets to asset management companies and invests in funds.

Given its unique investment objectives and constraints—such as the mandate to achieve a target return with minimal risk and the restrictions on in-house management—GPIF faces distinct

⁽Note 14) Abbreviation for the Canada Pension Plan Investment Board.

⁽Note 15) Under the GPIF Act, the trading of securities other than stocks (as defined under the Financial Instruments and Exchange Act) is permitted. Therefore, bonds can be managed in-house, and in fact, domestic bonds are managed internally.

challenges in risk management compared with other institutional investors. It is important to examine the risk management strategies employed by GPIF.

(1) Relative Risk Management Indicators Against the Policy Portfolio

The GPIF has established a policy portfolio to "ensure a minimum risk-adjusted return on investment." Investing in accordance with the policy portfolio can be considered a necessary condition for achieving this target. In other words, the GPIF is not permitted to take on significantly greater market or foreign exchange risks than those inherent in the policy portfolio. Therefore, monitoring the extent to which the actual portfolio deviates from the policy portfolio is crucial for effective risk management.

There are numerous management indicators for measuring the deviations from the policy portfolio, such as asset allocation ratios, currency allocation ratios, country allocation ratios, and credit risk. However, these indicators capture the degree of deviation from a specific perspective and do not provide a single numerical value to express the portfolio's overall deviation risk. Two indicators that quantify this deviation as a single value are tracking error and VaR ratio (Note 16). In fact, these two indicators are monitored by GPIF. Figure 6 on the following page illustrates the relative risk from the policy portfolio over the past 10 years, as measured by these two indicators.

Estimated tracking error (TE) indicates the degree of deviation in returns between the actual portfolio and the benchmark portfolio, expressed as one standard deviation (Note 17). The more important management indicator, however, is the VaR ratio. TE alone does not allow us to determine whether the risk is greater or smaller than that of the base portfolio, but the VaR ratio measures the relative risk to the base portfolio and allows us to confirm the relative magnitude. This figure serves as a risk indicator to confirm that the actual portfolio does not exceed the base portfolio's risk level, aligning with medium-term objectives. Ideally, it should be maintained at approximately 1.

As shown in Figure 6 on the following page, both indicators have decreased over time. This indicates that risk management focused on the base portfolio has been rigorously implemented, and the executive management's approach is highly consistent with the medium-term objective of "ensuring the minimum required risk for the actual investment return."

(2) Risk Management Associated with Outsourcing to Asset Management Companies

As noted earlier, under its institutional framework, the GPIF is prohibited from directly investing in equities and is required to outsource investment management to asset management companies. While in-house management is permitted for bonds and other assets, challenges such as insufficient

⁽Note 16) Abbreviation for Value at Risk (VaR) ratio. This figure is disclosed in the 2019 Annual Business Report.

⁽Note 17) For example, a tracking error of 1% indicates that the excess return over one year from a given point in time is expected to fluctuate within approximately ±1% with a probability of about 68% (one standard deviation)

investment staff have limited current in-house management to a portion of domestic bond assets. Therefore, to achieve its investment objectives, the GPIF must appropriately manage the asset management companies to which it outsources investment management.

The objectives of asset management include managing asset allocation ratios, controlling foreign exchange risk, adjusting country allocation ratios, managing interest rate risk, and achieving excess returns. However, regarding active management aimed at achieving excess returns, the medium-term objective states:

"In principle, passive and active management shall be used in combination. On that basis, active management shall be pursued with the aim of achieving excess returns. However, active management shall be conducted only after obtaining sufficient evidence to support the expectation that excess returns can be achieved, taking into account past performance."

When outsourcing active management, it is mandatory to select asset management companies that have sufficient capability to achieve excess returns in the future. Currently, active management is outsourced to asset management companies for four asset classes (domestic and foreign equities, bonds, and alternative assets).

Figure 6. Tracking Error and VaR Ratio Relative to the Policy Portfolio

Figure 6. Tracking Error and Van Natio Nelative to the Policy Portiono				
Risk Measurement Point	Estimated Tracking Error	VaR Ratio (Note1)		
2015 at the end of March	1.9%			
2016 at the end of March	1.5%			
2017 at the end of March	1.0%			
2018 at the end of March	0.5%			
2019 at the end of March	0.5%	1.09 ^(Note 2)		
2020 at the end of March	0.7%	1.05		
2021 at the end of March	0.5%	1.04		
2022 April – 2023 March	0.16% - 0.44%	1.00 – 1.04		
2023 April – 2024 March	0.13% - 0.29%	1.00 – 1.02		
2024 April – 2025 March	0.13% - 0.27%	0.98 – 1.01		

⁽Note 1) The VaR ratio is calculated by dividing the VaR of the actual portfolio by the VaR of the policy portfolio.

(Source) GPIF annual report

As a result of outsourcing asset management to various companies for the purposes described above, as of the end of March, 2025, 41 asset management companies had been selected and commissioned, with a total of 216 investment strategies (accounts) under management. The investment targets presented to asset management companies, known as manager benchmarks, total 72 (Note 18). In the following section, we will explain the benchmark management conducted in conjunction with the outsourcing of asset management to asset management companies.

⁽note 2) This is a full-year figure, not a value as of the end of March.

⁽Note 18) The breakdown is as follows: domestic bonds 3, domestic stocks 23, foreign bonds 13, foreign stocks 33.

4. Investment Process for Achieving Investment Objectives

Having explained investment performance and GPIF-specific risk management, this section will describe the investment process through which such performance and risk management have been executed. GPIF categorizes the factors contributing to excess returns relative to the policy portfolio into three categories: asset allocation factors, benchmark factors, and fund factors. The following will also explain the investment process by dividing these into the same three categories.

(1) Control of Asset Allocation Ratios through Rebalancing (Asset Allocation Factors)

For GPIF, the most critical aspect of risk management is controlling the allocation ratios of the four asset classes. The investment action of adjusting the actual allocation ratios back to those specified in the policy portfolio is referred to as rebalancing. As explained in Section 2, over the five-year period from April 2015 to March 2020, the excess return relative to the policy portfolio and the asset allocation effect were nearly identical, indicating that the impact of asset allocation ratio control on excess return was extremely significant. Even a 1% deviation in the allocation ratio can have a substantial impact on excess return.

Particularly important is the control of the allocation ratios for equity and foreign currency assets. The current risk composition ratio of the GPIF's policy portfolio (Note 19) is approximately 80% equity risk, approximately 20% foreign exchange risk, with other bond risks accounting for only a very small proportion. It is no exaggeration to say that the volatility of the GPIF's returns is almost entirely driven by fluctuations in the equity and foreign exchange markets. The fact that equity risk and foreign exchange risk account for nearly all of the return volatility stems from the GPIF holding 50% of its portfolio in equities, which have high return volatility, and 50% in foreign assets, which are exposed to foreign exchange risk and also exhibit high return volatility.

In response to short-term outlooks for capital markets, it is also possible to adopt a tactical asset allocation strategy that intentionally deviates from the policy portfolio's asset allocation ratios. The executive office has the discretion to adopt and implement such a strategy. However, it is unclear whether such an intentional asset allocation strategy was actually adopted. During the first five years, the difference between the policy portfolio and the actual asset allocation ratios averaged over 3%. However, as shown in Figure 3, the resulting investment performance of -0.28% per annum clearly indicate that such asset allocation ratio management methods were ineffective. On the other hand, during the latter five years, as explained in Section 3, the VaR ratio and tracking error decreased, and the difference between the asset allocation ratios and the policy portfolio also narrowed to approximately 1%.

The change in the investment process to more closely align the asset allocation ratios with the policy portfolio during the latter five years is also clearly stated in the CIO's explanation in the

⁽Note 19) Risk contribution ratio refers to the proportion of the portfolio's total price fluctuation (100%) attributable to each risk, calculated by the author using risk contribution analysis such that the total of all risks equals 100%.

annual report (Note 20). For example, initiatives such as "allocating funds to declining risk assets (FY 2020)," "accelerating asset rebalancing through the use of stock index futures (FY 2021)," "aligning operations with the policy portfolio (FY 2023)," and "refining rebalancing (FY 2024)" demonstrate the intention to closely align with the asset allocation ratios of the policy portfolio, and various improvements were implemented in the operational processes.

For the GPIF, which manages an enormous 250 trillion yen in assets, aligning asset allocation ratios with the policy portfolio is a highly challenging investment strategy. Both stock and bond markets have seen heightened price volatility in recent years, with daily price movements occasionally exceeding 1%. In particular, Japanese stocks have relatively lower liquidity compared to the other three asset classes, and conducting large-scale rebalancing actions over a short period could lead market participants to anticipate such moves, triggering proactive investment actions that could potentially damage the assets of the public entrusted to the GPIF. Even in the medium-term objectives, it is stated that "particularly when deploying or withdrawing funds, efforts should be made to avoid concentration at specific times, taking into account market size, and ensuring that the GPIF does not incur excessive market impact." This requires the GPIF to closely monitor daily capital market trends and execute delicate investment actions that do not disrupt the market. GPIF's rebalancing process is therefore extremely delicate, requiring clear communication of investment intentions to the externally commissioned asset management companies and close collaboration with them.

Based on the investment results for the 2020-2024 fiscal years (asset allocation effect: +0.01% annually) and risk management indicators (VaR ratio), it can be concluded that GPIF has conducted these operations appropriately.

(2) Selection of Manager Benchmarks, etc. (Benchmark Factors)

As mentioned earlier, due to institutional constraints, GPIF must outsource asset management to external asset managers when investing in assets, including equities. Establishing methods to effectively leverage their capabilities is essential for achieving objectives. The purposes of outsourcing asset management to asset managers vary widely, ranging from asset class rebalancing to active management. Therefore, it is essential to select appropriate manager benchmarks tailored to these objectives and enable them to demonstrate their capabilities.

When utilizing asset management companies for asset class rebalancing, passive management is often outsourced. In cases of passive management, the manager benchmark is typically specified as an index equivalent to the policy benchmark, or, to accommodate flexibility in rebalancing, indices from subcategories of regional indices (Note 21) may be designated. For example, in passive equity

⁽Note 20) Abbreviation for Chief Investment Officer, which refers to a board member responsible for investment management and operations.

⁽Note 21) For example, while the policy benchmark for foreign bonds is the FTSE World Government Bond Index (excluding Japan

management, specifying the same benchmark as the policy benchmark enables the use of equity index futures with risk-return characteristics equivalent to the policy benchmark, allowing for large-scale basket transactions with relatively high liquidity and swift execution. Note that in foreign equities, as described later, many region-specific manager benchmarks are established in active management to target excess returns. However, to accommodate adjustments in country allocations and investment styles under active management, many manager benchmarks different from the policy benchmark are also specified in passive management. On the other hand, in foreign bonds, in addition to indices identical to policy benchmarks, regional benchmarks that serve as subcategories of policy benchmarks and manager benchmarks with limited maturity periods are also set to precisely adjust foreign exchange risk and interest rate (duration) risk.

As such, in passive management, a variety of manager benchmarks are set that differ from policy benchmarks. It should be noted that GPIF's high ratio of passive management is primarily due to the inability to entrust large amounts of funds to active management, but another important reason is the importance of quickly and accurately rebalancing asset classes.

When the purpose of outsourcing to an asset management company is to achieve excess returns rather than risk management, the reasons for selecting a manager benchmark vary depending on the asset. For example, in the case of foreign bonds, the policy benchmark is the FTSE World Government Bond Index (excluding Japan, excluding China, unhedged, yen-based). This benchmark does not include bonds with credit risk, such as corporate bonds. It is well known that long-term investors can potentially achieve higher returns than government bonds by taking on credit risk. Therefore, setting a manager benchmark that targets investment-grade corporate bonds and high-yield bonds (Note 22) while monitoring indicators such as credit risk spreads and appropriately managing the positions is considered effective for achieving excess returns over the long term. At the end of March, 2025, the balance of such investments was negligible; however, there was a period when benchmarks such as the Bloomberg Global Aggregate Index, which invests not only in corporate bonds but also in securitized products and emerging markets, served as the primary active management benchmark.

In the 2024 annual report, the CIO commented on the changes in foreign bond benchmark management as follows:

"Given that it has become difficult to manage the total amount of credit risk through comprehensive active funds, we have reviewed the fund composition and selection methods for foreign bond investments as a whole during the fourth medium-term target period. By diversifying passive funds, such as adopting credit-type passive funds and expanding regional passive funds that subdivide the WGBI (World Government Bond Index), we have established a system to manage the

and China, unhedged, yen-based), subcategory indices such as the FTSE U.S. Government Bond Index (unhedged, yen-based) or the FTSE World Government Bond Index (excluding Japan, the U.S., EMU, and China, unhedged, yen-based) can also be cited. (Note 22) High-yield bonds generally refer to bonds with lower credit ratings than investment-grade bonds.

primary risks associated with foreign bond investments. As a result, we began managing a U.S. investment-grade corporate bond portfolio consisting of seven active funds and a passive fund for adjusting interest rate risk (duration) in the first quarter of fiscal 2024."

This description suggests that GPIF has assumed control of the primary risks associated with foreign bonds. Prior to March 2020, GPIF encouraged active management companies to take on various risks in order to achieve excess returns. However, since April 2020, GPIF has transitioned to a management system in which it controls the overall level of risk, including credit risk. As a result, the roles of benchmark selection and active managers have also changed.

In contrast, for foreign equities, it is challenging to achieve excess returns by combining passive investments using different manager benchmarks, as is done with foreign bonds, to assume credit risk. Therefore, a different approach is taken in selecting manager benchmarks. Specifically, each manager is assigned a manager benchmark that aligns with their strengths and potential for generating excess returns, and these are combined to achieve stable excess returns as much as possible.

In this context, passive funds known as beta balancers are employed to correct investment style biases that arise when a collection of different manager benchmarks deviates from the policy benchmark (Note 23). As a result, various style benchmarks are specified for these beta balancers. For example, in the 2022 annual report, the CIO stated in relation to the selection of active managers for North American equities: "To adjust style risk and other factors in the portfolio constructed by the fund, we adopted multiple new indices and invested approximately 1 trillion yen in passive funds." Active managers were selected for North American equities because the region offers numerous investment strategies capable of generating excess returns.

(3) Active Manager Selection (Fund Factors)

Achieving excess returns relative to the policy portfolio through active management is crucial. GPIF has also sought to identify asset management companies that are believed capable of achieving excess returns relative to the manager benchmark through various selection methods. The chart that follows, Figure 7, illustrates the trends in active management ratios by asset class and overall assets over the past decade, resulting from the adoption of active managers. (Note 24)

The overall active ratio hovers around 20%, but there are significant differences by asset class, and the ratio has changed substantially over time. In particular, the change in the active ratio for bonds is notable. For example, the active ratio for domestic bonds rose significantly after 2022, reaching over 50% at the end of March 2024. However, this increase in the active ratio is primarily due to the significant expansion of in-house management, which reached 37% (33% as of March 2025), while the ratio of active management outsourced to external firms remains at approximately

⁽Note 23) For further details, please refer to page 53 of the 2023 Annual Business Overview.

⁽Note 24) For the definition of active management, please refer to page 60 of the 2024 Annual Business Overview.

11%, showing little change from the level of about 14% a decade ago.

The active ratio for foreign bonds, however, has decreased from approximately 30% ten years ago and around 40% eight years ago to 3% as of March 2024, a reduction of one-tenth. This change is influenced by the significant revision of GPIF's foreign bond risk management methods, as mentioned earlier. For example, in the 2021 Business Overview, the CIO stated the following:

"In fiscal 2020, we increased the ratio of corporate bonds in foreign bonds, but by the end of fiscal 2021, we reduced it to approximately 5% of foreign bonds. In particular, the amount of high-yield bonds held was reduced to less than one-fifth of the peak level by the end of fiscal 2021 due to changes in investment guidelines and fund redemptions."

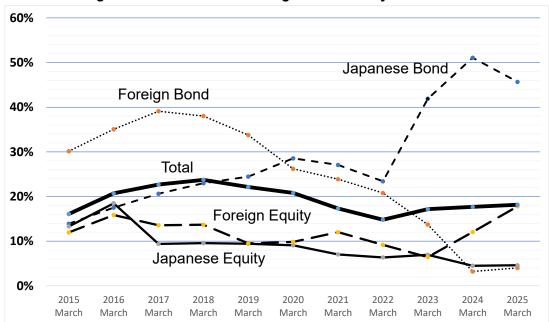


Figure 7. Trend in Active Management Ratio by Asset Class

(Source) GPIF annual report

Based on the amounts entrusted to each asset management company at the time, it is evident that many active managers who had used the Bloomberg Global Aggregate Index as their benchmark were replaced during this process with passive managers using different benchmarks.

Both domestic and foreign equities have active ratios fluctuating around 10%, but the selection method for active managers underwent significant changes in autumn 2022. In the annual reports for fiscal years 2021 and 2022, the CIO letter mentioned plans to test new methods for active manager selection. Furthermore, the annual report for fiscal year 2023 states, "We will research a method that incorporates the latest data science-based analysis into the quantitative evaluation of investment management relationships and actively expand the selection of active equity funds starting in the second half of fiscal year 2022."

In this explanation, it is stated that "3 trillion yen was invested in 19 active funds in the North American stock market (including investments in passive managers)," but it is also explained that by analyzing data such as the investment strategies and holdings of each active manager, it is now possible to more accurately assess each manager's stock selection capabilities more accurately than before. The deviation between the aggregate of each manager's benchmarks and the policy benchmark is addressed by adopting passive funds known as beta balancers, which aim to achieve stable excess returns.

However, this management method also appears to be incomplete. The 2024 annual report states, "The price movements of securities were larger than expected, and the beta balancer was unable to adequately capture those movements." This suggests that the beta balancer was unable to adequately capture changes in the active manager's positions, resulting in incomplete style adjustments and a decline in excess returns.

5. Investment in Alternative Assets

As of the end of March, 2025, GPIF has invested approximately 4.2 trillion yen (commitment amount: approximately 7.4 trillion yen) in alternative assets, accounting for 1.6% of the total portfolio (2.9% based on commitment amounts). The upper limit ratio is 5%, suggesting that there appears to be significant room for further investment. However, it is important to note that alternative assets require different handling from other institutional investors for GPIF. This is because GPIF does not treat alternative assets as independent assets but manages them as part of the traditional four asset classes.

Specifically, infrastructure and real estate are allocated as 50% domestic bonds and 50% domestic equities if the investment targets are domestic, and 50% foreign bonds and 50% foreign equities if the investment targets are foreign assets. Private equity is also treated based on the investment targets, either as 100% domestic equities or 100% foreign equities (Note 25). Because alternative assets have different risk-return characteristics from the traditional four asset classes, using such proxy ratios for management can lead to deviations from the policy portfolio, creating investment challenges in controlling these deviations.

For example, the excess return relative to the GPIF's policy portfolio for the 2023 fiscal year was +0.04%. Breaking this down, traditional assets combined with private equity contributed +25 basis points (Note 26) (of which the individual asset factor contribution of private equity was -5 basis points), while infrastructure and real estate, including currency hedging, contributed -21 basis points. The main reason for the modest excess return of the overall portfolio was the significant impact of alternative assets, which accounted for less than 1.2% at the time. GPIF attributed this outcome to two factors: first, the fair value of alternative assets is reflected in the portfolio later than that of traditional assets; and second, using a 50% proxy ratio for stocks and bonds leads to comparisons of alternative assets' returns against high-return stocks.

The impact on returns is not the only concern; risk management is also a complex task. GPIF

⁽Note 25) This ratio is referred to as the proxy ratio.

must execute currency hedging tailored to the currency risks of its investment targets, and conducts detailed factor decomposition of market value fluctuations, such as currency fluctuations and exchange rate changes, into components like capital contributions, capital withdrawals, and fee expenses, market value fluctuations, and foreign exchange rate fluctuations, among other factors. However, GPIF cannot avoid unique factors specific to alternative investments, such as the timing discrepancy in valuation periods and the use of proxy ratios, and it is anticipated that risk management for alternative assets will remain challenging in the future.

6. ESG Investing

Next, I'll review the current status of GPIF's ESG investments using data. GPIF's ESG investments are primarily in ESG indices. As of the end of March, 2025, equity investments linked to ESG indices totaled approximately 18.2 trillion yen, accounting for 14.8% of total equity investments. To clarify the role of ESG investments within the medium-term objectives, Figure 8 is provided below.

Figure 8. How to include ESG Factors in Medium-Term Objectives

The 3 rd Medium-Term Objective (2015 April - 2020 March)	In equity investment, consider incorporating ESG (Environmental, Social, and Governance) factors—non-financial elements—alongside financial factors to secure returns.
The 4 th Medium-Term Objective (2020 April - 2025 March)	In managing GPIF, investments should be promoted that consider ESG factors—non-financial elements—based on the principle that the sustainable growth of investment targets and the overall market is necessary for expanding long—term investment returns on managed assets. Efforts should be advanced while bearing in mind the fundamental policies for managing and operating GPIF, such as the purpose of securing long—term returns for the benefit of insured persons. Additionally, continuously verify that ESG investments are conducted in accordance with the fundamental principles required for the GPIF's asset management.
The 5 th Medium-Term Objective (2025 April - 2030 March)	Recognizing the need for sustainable growth in investment targets and the overall market to expand long-term investment returns on managed assets, we promote investments that consider ESG, a nonfinancial factor. In doing so, while paying attention to the "Basic Policy for the Management and Operation of GPIF"—such as the purpose of securing long—term returns for the benefit of insured persons—establish a basic policy for sustainability—considered investments. Furthermore, from the perspective of appropriately implementing the PDCA cycle, continuously verify investments considering ESG factors, review the verification results, and proceed with initiatives accordingly.

(Source) Minister of Health, Labour and Welfare, "The 3rd, 4th and 5th GPIF Mid-Term Target" 2015 -2025

As shown in Figure 8, the latter five-year period marks the first time that "promoting ESG-considered investments" is explicitly stated as a goal, whereas the previous five-year period only

mentions "considering ESG factors," without any explicit call for promoting such investments. Nevertheless, the fact that investments linked to ESG indices already accounted for approximately 8% (5.7 trillion yen) of total equity investments during the first five-year period is remarkable. Indeed, during this period, some overseas asset owners praised GPIF for its proactive approach to ESG investing, and GPIF's status has indeed risen (Note 27). On the other hand, there are also questions about whether the board of governors adequately fulfilled its supervisory role regarding the rapid progress of investment implementation by the executive board, despite the medium-term objective merely stating that "consideration will be given." (Note 28) As I served as a full-time auditor and governor from October 2017, midway through the third medium-term objective period, I believe there were areas where reflection is necessary regarding such opinions.

On the other hand, considering that ESG investment is primarily based on investment linked to ESG indices, and that GPIF has established the principle of prohibiting consideration of other factors (Note 29), the "Practical Guidelines for ESG Index Selection" were established at the 46th board of governor meeting held on September 18, 2020, clarifying the basic principles of ESG investment.

In summary, these practical guidelines require strict adherence to the principles of discretionary investment management, prohibiting consideration of other factors in ESG investing, and a strict avoidance of reputation risk. When selecting indices that include negative screening methods (i.e., those that exclude specific industries, companies, etc.), the guidelines require that the selection be based solely on economic rationality, avoid unnecessary speculation, and that the selection process be reasonable and transparent, among other criteria, and that the selection be made with caution and conservatism.

Given that most commercially available ESG indices include negative screening methods, limiting the selection of indices to those that do not include such methods would significantly narrow the range of options and could potentially harm the interests of insured parties. Therefore, while the basic principle is to avoid using negative screening methods as much as possible when selecting indices, we have clarified the specific criteria under which such methods may be acceptable.

The quantitative effects (excess returns) of ESG investment on asset-specific policy benchmarks were briefly explained in the 2023 Annual report, as more than six years had passed since the start of investment at that time, and it was stated that there were some positive effects. In contrast, the CIO Letter in the 2024 Annual report states, "ESG index investing has been in place for seven

⁽Note 27) The author recalls receiving such positive evaluations multiple times from overseas pension funds while employed at GPIF. (Note 28) The author heard such opinions after leaving GPIF.

⁽Note 29) The medium-term objectives consistently state that "the system is structured such that the management of pension reserves cannot be conducted for purposes other than the sole benefit of insured individuals, such as achieving other policy objectives or implementing measures (consideration of other matters)."

years, and we will continue to optimize the portfolio by adjusting the investment amounts in existing indices, selecting new indices, and other measures, taking into account a review of past performance and other factors." Additionally, the "Sustainability Investment Policy," published in March 2025, identifies the ESG index investing as one of its key sustainability investment strategies outlined therein. ESG indices are also conducted in accordance with this investment policy, aiming to contribute to the long-term performance of the overall portfolio by balancing "reducing sustainability-related risks and enhancing market sustainability" with "ensuring market average returns," as stated by the CIO in the 2024 Annual report. It is anticipated that ESG investments will be advanced cautiously based on the results of effectiveness verification starting from the 2025 fiscal year (Note 30).

7. Evaluations to Date and Future Challenges

Thus far, I have provided a brief overview of GPIF's current investments based on data and descriptions from the annual report. I would now like to share my personal opinions on how the past 10 years of efforts and the current situation can be evaluated, as well as the challenges that lie ahead.

(1) Achieved and Unachieved Investment Objectives

As shown in Section 2 on investment results, GPIF achieved a real investment return of $\pm 4.45\%$, significantly exceeding the 10-year target of $\pm 1.7\%$. As the executive body responsible for achieving medium-term objectives, GPIF can be evaluated as having fulfilled its role adequately.

On the other hand, the excess return relative to the policy portfolio was negative in the first five years and positive in the latter five years, resulting in contrasting outcomes between the two periods. As previously mentioned, the medium-term objective did not explicitly include excess returns relative to the policy portfolio as an evaluation metric for the first five years. However, the sophistication of the investment process over the latter five years is worth noting. As previously described, this includes the establishment of a meticulous rebalancing process with asset management companies to faithfully replicate the policy portfolio, the use of stock index futures to speed up rebalancing, the development of a new active investment manager selection process utilizing data analysis, the establishment of a process for proactively controlling credit risk, the rapid reduction of U.S. Treasury securities with currency hedging, and the refinement of risk management for alternative assets. The examples of investment process enhancements implemented over these five years are too numerous to list.

I served as an audit committee member and management committee member from October 2017 to August 2022, overseeing the executive office. The improvements in the investment process

⁽Note 30) Incidentally, in June 2025, the GPIF published a report titled "Report on the Effectiveness of ESG Factors and Corporate Value."

resulting from the measures implemented since April 2020 are significant, and I believe that the company deserves high praise for its ongoing efforts to further improve its investment process. We look forward to the continued strong leadership of the management team, whose deep commitment to achieving the medium-term objectives will continue to drive the executive office forward.

(2) Major Changes to the Investment Process

On the other hand, it is also true that there has been confusion among asset management companies that have been outsourced regarding the significant changes in the executive's investment process between the first half (the third medium-term plan period) and the second half (the fourth medium-term plan period) of the past 10 years. During this period, the ratio of foreign bonds increased from 15% to 25%, while the ratio of domestic bonds decreased from 35% to 25%. The allocation ratios for domestic equities and foreign equities, however, remained unchanged, and there were no significant changes in the permissible deviation range for allocation ratios.

Nevertheless, from the perspective of asset management companies, various changes appear to have occurred, including revisions to the rebalancing methodology, the selection criteria for active asset management companies, and the investment guidelines for these companies. In particular, passive managers have reported that the rebalancing process has become more sophisticated, requiring more frequent, rapid, and precise rebalancing than before, resulting in an undeniable increase in workload. Additionally, there have been reports of difficulties in responding to changes such as the reduction in the amount of assets entrusted to active asset management companies and revisions to investment guidelines.

However, as mentioned earlier, such changes are clearly attributable to the GPIF Executive Board's efforts to enhance the investment process and expand the scope of risks it seeks to control. As stated by the CIO in the 2024 Business Overview, the GPIF has declared its intention to further advance its existing initiatives, and this trend is expected to continue.

At the same time, there have been significant changes in the relationship between the GPIF and asset management companies. Previously, both the GPIF and asset management companies had to perform a significant amount of work, including interviews, to respond to requests. Customized reports tailored to the GPIF's requirements had to be prepared, making the response process time-consuming. Since 2023, however, there have been significant changes in the relationship between the two parties, and it appears that detailed reports are now only required when returns deteriorate. Furthermore, GPIF is listening to the feedback of asset management companies on improvement requests and taking action accordingly.

For example, an investment staff member from one asset management company stated: "The idea that GPIF's responses are time-consuming is a thing of the past and no longer applies today. When returns are good, we simply send return and position data and provide a brief investment report. When returns are poor, we are asked for detailed explanations, which is only natural. GPIF has listened to the asset management companies' requests and made efforts to simplify the

reporting process, among other things, giving us the impression that they have become a reliable partner with whom we can exchange opinions."

(3) The Raison d'Être of GPIF and Future Challenges

Compared to overseas pension funds and sovereign wealth funds of similar scale, it is a fact that GPIF has relatively few investment staff, and their compensation levels are not particularly high. Regulatory constraints prevent GPIF from conducting in-house equity management, so a fund-of-funds structure must be adopted for most of its portfolio. Given these constraints, the question must be asked: what kind of executive office should GPIF aim to become in the future?

I believe that the significance of GPIF lies in achieving excess returns on the policy portfolio. Once the board of governors and the Ministry of Health, Labour and Welfare determine the policy portfolio, GPIF could, in principle, operate with a minimal staff and outsource nearly all operations to asset management companies. The GPIF executive office must not forget that the Ministry of Health, Labour and Welfare always has this alternative option. As correctly defined in the objectives for the fifth medium-term period that began in April 2025, the purpose of the GPIF is to "ensure the composite benchmark return on total assets during the medium-term objective period." This requires implementing various investment strategies to ensure the policy portfolio is maintained at a minimum level and to achieve returns that exceed it.

Achieving this objective is no easy task for the GPIF, which manages an enormous fund of 250 trillion yen. However, judging from the progress made in enhancing the investment process since April 2020, I believe that the GPIF possesses the necessary capabilities to achieve this objective. As a citizen, I will continue to monitor the developments in the investment process with the expectation that these capabilities will be fully utilized.

Although not discussed in this paper, numerous other important issues remain to be addressed, including the organizational structure of the GPIF, the advancement of its operational infrastructure, the engagement-based passive investment strategy currently being implemented for Japanese equities, the approach to investment management fees for asset management companies, and the resumption of the stock lending process for foreign equities. These issues will be addressed in a separate paper at a later date.

(References)

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