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# Economic and psychological determination in civil servants' investment decisions ahead of retirement: empirical evidence from Indonesia

**Abstract.** This study aims to examine the influence of economic and psychological factors on the investment decisions of Civil Servants (PNS) who are approaching retirement in West Kalimantan Province of Indonesia. The financial factors studied included investment feasibility, while the psychological factors examined were overconfidence, herding, regret aversion, and risk tolerance. Data was obtained from a survey of 176 civil servants who will retire in 2025-2029, and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The study's results indicate that investment feasibility, overconfidence, herding, regret aversion, and risk tolerance have a positive and significant impact on investment decisions. The path coefficient and $R^2$ values indicate that the explanatory model is quite robust (e.g., $R^2 > 0.50$ for investment decisions). These findings reinforce the behavioral finance literature, which suggests that, in addition to economic considerations, psychological biases also play a significant role in investment decisions, particularly in the lead-up to retirement. Practical implications include the need to develop financial literacy and policy interventions that consider psychological aspects, enabling civil servants to make more informed and optimal investment decisions.
**Keywords:** Behavioral Finance; Investment Feasibility; Overconfidence; Herding; Regret Aversion; Risk Tolerance; Investment Decision; Civil Servants

## 1. Introduction and Brief Literature Review

Retirement is a significant transition for civil servants who require robust financial planning beyond the state's pension guarantees. Given the ever-evolving dynamics of the economy, including inflationary pressures and lifestyle changes, investment strategies are becoming increasingly crucial to ensure financial stability in the post-retirement period (Wangzhou et al., 2021). In this context, several key considerations are worth noting. First, in terms of investment strategies for retirement, research shows that managing variable consumption levels can increase final annuity yields during the deaccumulation phase, thus emphasizing the importance of strategic investment decisions (Dadashi, 2020). Additionally, asset allocation is a crucial factor. The MacDonald et al. (2020) found that overly conservative asset allocation can actually increase the risk of insufficient pension funds. Conversely, a more balanced approach, combining equity, can significantly strengthen retirement adequacy, as seen in the KiwiSaver system in New Zealand. Second, related to the sustainability of public pensions, the decline in the birth rate and the increase in life expectancy pose new challenges to the sustainability of the state pension system. Boado-Penas et al. (2021) suggest implementing a blended pension scheme, in which individuals invest additional funds to cover potential deficits, thereby ensuring a more stable retirement income. Third, aspects of financial literacy and decision-making are equally important. Low financial literacy and declining cognitive function in old age can hinder the effectiveness of retirement planning. According to Banks & Crawford (2022), in Managing Retirement Income 2020, it is emphasized that improving financial literacy is an essential step in enhancing retirement income management.

While these strategies emphasize the importance of proactive financial planning, some argue that the existence of a state pension can still be a safety net for many retirees. However, changing global economic conditions suggest that a dual approach - relying on state pension support while building personal investments - is increasingly needed to ensure financial security in retirement.

Many civil servants approaching retirement face the serious challenge of insufficient retirement income to maintain their desired standard of living. This makes investment decisions an essential aspect to ensure long-term financial well-being. Not only economic factors, but also psychological factors play a significant role in influencing their investment choices. From an economic perspective, civil servants must consider the rising cost of living, which tends to increase and often exceeds retirement income (Amirludin et al., 2024).

In the context of Indonesia, particularly among civil servants in West Kalimantan, there have been few studies that have simultaneously examined the influence of both economic and psychological factors on investment decisions leading up to retirement. There is a significant amount of research in the retail capital market, or among general investors, but very few studies focus on the group of civil servants who are nearing the end of their service life, whose financial conditions tend to change due to retirement preparations.

This study aims to measure the influence of investment feasibility on civil servants' investment decisions leading up to retirement, as well as assess the extent to which psychological factors, such as overconfidence, herding, regret aversion, and risk tolerance, play a role in shaping these decisions. In addition, this study aims to provide empirical evidence from local contexts, particularly in West Kalimantan Province, thereby enriching the literature on behavioral finance in the public sphere and during the retirement preparation period. Not only that, the research results are expected to yield relevant policy recommendations and practical interventions, such as financial literacy programs or retirement planning, that comprehensively consider both the economic and psychological aspects of civil servants approaching retirement.

The contribution of this research can be seen from three main aspects. Theoretically, this study enriches the behavioral finance literature by focusing on civil servants who are about to retire, rather than capital market investors in general. This study also examined psychological variables that are widely used, such as overconfidence, herding, regret aversion, and risk tolerance, in conjunction with economic factors, including investment feasibility. From a methodological perspective, this study employs the PLS-SEM approach with a representative sample of civil servants before

retirement, while incorporating psychological variables that have been rarely studied in the context of retirement and the public sector in Indonesia. Meanwhile, practically, the results of this research are expected to serve as the basis for local governments and related agencies in designing financial literacy programs and pension policies that take into account psychological factors, thereby enabling civil servants to better prepare for economic risks upon retirement.

The framework of thought in this study is built on the basis that two main groups of factors influence investment decisions. The first is economic factors, especially investment feasibility, which encompasses the extent to which an investment is considered financially feasible, taking into account the rate of return, cost, liquidity, and financial risk. The second is psychological factors that include several important aspects, namely: overconfidence or overconfidence in one's ability to predict and manage investments; herding or the tendency to follow the behavior of the majority or the actions of other investors as a form of social proof; regret aversion or reluctance to regret later that encourages investors to be more cautious or avoid high-risk choices; and risk tolerance which shows the extent to which individuals are willing to take risks in their investments. Based on this frame of thought, this study proposes five hypotheses, namely:

H1: investment feasibility has a positive effect on civil servants' investment decisions before retirement;

H2: overconfidence has a positive impact on investment decisions;

H3: herding has a positive effect on investment decisions;

H4: regret aversion has a positive impact on investment decisions;

H5: risk tolerance has a positive effect on investment decisions.

## 2. Research Methodology

The methodology of this research is designed to address questions and hypotheses that have been previously formulated. The study employs an explanatory quantitative approach to examine the causal relationship between economic and psychological factors and the investment decisions of Civil Servants (PNS) who are about to retire. This method was chosen because it enables the empirical testing of theoretical models through Structural Equation Modeling-Partial Least Squares (SEM-PLS), which is considered suitable for research models with numerous latent variables and indicators.

The research population consists of all civil servants within the West Kalimantan Provincial Government who are expected to retire between 2025 and 2029, totaling 1,756 individuals. The sample size was determined using the Slovin formula, with a 5% error rate, to ensure a minimum of 326 respondents were obtained. However, after distributing the questionnaire and completing the data validation process, the number of respondents eligible for analysis amounted to 176 people. Sampling was conducted through stratified random sampling based on rank groups (Groups II, III, and IV) to ensure that all groups of civil servants, before retirement, are proportionally represented.

The operational definitions of variables in this study include: investment feasibility (X1) which represents respondents' perception of financial benefits, risks, liquidity, and investment prospects; overconfidence (X2) which indicates the tendency of individuals to overestimate their ability to manage investments; herding (X3) which reflects the behavior of following trends or decisions of other investors; regret aversion (X4) which describes the tendency to avoid decisions that can cause regret; risk tolerance (X5) which indicates the level of courage of respondents in facing investment risks; and investment decisions (Y) which refers to respondents' preferences in choosing investment instruments ahead of retirement.

## 3. Research Results

### 3.1. Respondent Characteristics

The characteristics of the respondents in this study revealed that the majority of participants were male, comprising 59% of the sample. In terms of age, most respondents, around 90 percent, are in the 51- to 60-year age range, which reflects the group that is indeed in the phase of retirement. Judging from the level of education, the majority of respondents have a bachelor's degree (S1) background, at 34 percent, while the rest are spread across high school, D3, and S2 education levels. Based on rank group, respondents were dominated by Group III civil servants, followed by Group IV and Group II, illustrating the diversity of demographic and structural characteristics among the research sample of civil servants.

### 3.2. Outer Model Evaluation Results

The results of the evaluation of the outer model show that all variable indicators in this study meet the criteria of validity and reliability. The loading factor value for each indicator is above 0.70, indicating that all indicators have sufficient power to represent their latent variables. The Average Variance Extracted (AVE) value is also within the range of 0.59 to 0.65, indicating that all variables exhibit good convergent validity, as they exceed the minimum limit of 0.50. In terms of reliability, the Composite Reliability value ranges from 0.85 to 0.89, while the Cronbach's Alpha value falls within the range of 0.79 to 0.85. Both measures demonstrate strong internal consistency, as they exceed the 0.70 threshold (Table 1). Thus, it can be concluded that the constructs of investment feasibility, overconfidence, herding, regret aversion, risk tolerance, and investment decisions are all valid and reliable, making them suitable for use in the subsequent structural model testing.

Table 1:
**Outer Model Evaluation Results**

| Variable | Indicator | Loading Factor | AVE | Composite Reliability | Cronbach's Alpha |
|---|---|---|---|---|---|
| Investment Eligibility (X1) | X1.1–X1.4 | 0.72–0.85 | 0.62 | 0.88 | 0.83 |
| Overconfidence (X2) | X2.1–X2.5 | 0.70–0.84 | 0.59 | 0.87 | 0.81 |
| Herding (X3) | X3.1–X3.4 | 0.73–0.82 | 0.61 | 0.86 | 0.79 |
| Regret Aversion (X4) | X4.1–X4.4 | 0.71–0.83 | 0.60 | 0.85 | 0.80 |
| Risk Tolerance (X5) | X5.1–X5.3 | 0.74–0.87 | 0.65 | 0.88 | 0.82 |
| Investment Decision (Y) | Y1–Y5 | 0.72–0.86 | 0.64 | 0.89 | 0.85 |

Interpretation: All indicators meet the criteria of validity and reliability.

Source: Authors' own findings

### 3.3. Inner Model Evaluation Results

The results of the internal model evaluation indicate that all independent variables have a positive and statistically significant impact on the investment decisions of civil servants before retirement. The investment feasibility variable (X1) has a path coefficient of 0.28, with a $t$-statistic value of 3.45 and a $p$-value of 0.001, indicating that the feasibility aspect is the most significant factor influencing investment decisions. Furthermore, overconfidence (X2) also had a significant effect, with a path coefficient of 0.25, a $t$-statistic of 2.98, and a $p$-value of 0.003, indicating that excessive confidence in one's abilities also drives investment decision-making. The herding variable (X3) had a positive effect of 0.22 with a $t$-statistic of 2.67 and a $p$-value of 0.008, indicating that the tendency to follow the behavior of the majority also influenced the decision. Meanwhile, regret aversion (X4) also had a positive effect, with a coefficient of 0.20, a $t$-statistic of 2.41, and a $p$-value of 0.016, indicating that the tendency to avoid regret influences more prudent investment choices. Finally, risk tolerance (X5), although it has a relatively minor influence, remains significant with a path coefficient of 0.19, a $t$-statistic of 2.15, and a $p$-value of 0.032 (Table 2). Thus, it can be concluded that both economic and psychological factors play a role in shaping investment decisions, with investment feasibility being the most potent factor among other variables.

Table 2:
**Results of Inner Model Evaluation**

| Links | Path Coefficient | t-statistic | p-value | Information |
|---|---|---|---|---|
| X1 → Y (Investment Feasibility → Investment Decision) | 0.28 | 3.45 | 0.001 | Significant |
| X2 → Y (Overconfidence → Investment Decisions) | 0.25 | 2.98 | 0.003 | Significant |
| X3 → Y (Herding → Investment Decisions) | 0.22 | 2,67 | 0.008 | Significant |
| X4 → Y (Regret Aversion → Investment Decisions) | 0.20 | 2.41 | 0.016 | Significant |
| X5 → Y (Risk Tolerance → Investment Decisions) | 0.19 | 2.15 | 0.032 | Significant |

Source: Authors' own findings

### 3.4. $R^2$ Value for the investment decision variable

The $R^2$ value for the investment decision variable (Y) was obtained as 0.63. This indicates that the research model can explain approximately 63% of the variation in civil servants' investment decisions before retirement through the independent variables tested, namely investment feasibility, overconfidence, herding, regret aversion, and risk tolerance. Meanwhile, the remaining 37% of the variation in investment decisions was influenced by factors outside the research model, such as financial literacy, investment experience, macroeconomic conditions, or socio-cultural aspects that were not included in the model. Thus, this relatively high $R^2$ value confirms that the model used has a strong and relevant explanatory power in understanding the investment behavior of civil servants ahead of retirement.

### 3.5. Values of $Q^2$ and $f^2$ for predictive relevance

The $Q^2$ value of 0.41 indicates that this research model has good predictive relevance, meaning it can provide reasonably accurate predictions of investment decision variables. Additionally, the results of the $f^2$ effect analysis revealed a variation in values ranging from 0.12 to 0.28. These findings indicate that each independent variable makes a moderate contribution to civil servants' investment decisions leading up to retirement. Thus, it can be concluded that the combination of economic and psychological factors tested in the model is not only statistically significant but also has relevant predictive power and a real substantive contribution in explaining the investment behavior of the respondent group.

### 4. Conclusion

This study was conducted to examine the extent to which economic and psychological factors influence the investment decisions of Civil Servants (PNS) who are approaching retirement in West Kalimantan Province. Using the Structural Equation Modeling-Partial Least Squares (SEM-PLS) method with 176 respondents, this study successfully demonstrated that all the variables tested-investment feasibility, overconfidence, herding, regret aversion, and risk tolerance-had a positive and significant impact on investment decisions. These results suggest that investment decisions made before retirement are not only a matter of economic rationality but are also influenced by complex psychological factors.

The summary of the results from this study indicates that all proposed hypotheses (H1-H5) are supported. This means that both economic factors, in the form of investment feasibility, and psychological factors, including overconfidence, herding, regret aversion, and risk tolerance, have been proven to have a significant influence on civil servants' investment decisions ahead of retirement. Thus, investment decisions are determined not only by rational considerations regarding economic benefits, but also by the biases and psychological tendencies inherent in individuals. In addition, the analysis model, as applied through the SEM-PLS approach, proved to be valid and reliable, with an $R^2$ value of 0.63, indicating that the model can explain most of the variations in investment decisions quite strongly.

The main findings of this study confirm that investment feasibility is the most dominant factor in influencing civil servants' decisions ahead of retirement. This indicates that rational considerations, including the rate of return, risk, liquidity, and security of investments, continue to be the primary basis for decision-making. Nonetheless, psychological factors cannot be ignored either. Overconfidence is a significant factor in encouraging the active involvement of civil servants in investment, indicating an overconfidence in personal abilities that, on the one hand, can encourage participation, but on the other hand, has the potential to trigger excessive risk-taking.

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