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Value Creation on Member Contributions in Zambian Pension Funds: Evidence for Imperative Investment in Financial Education

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Abstract

This paper evaluated the extent to which pension funds in Zambia are growing member contributions to inform the behavior of fund managers, policymakers, and prospective retirees. Stacked data on annual pension fund financial performance for the period between 2011 and 2020 was collected from the Pensions and Insurance Authority. Data on the performance of riskless government securities and annual inflation was obtained from the Bank of Zambia. Descriptive and inferential statistical techniques were used to analyze the data set. The study established that the industry was able to grow member contributions by a nominal average of 12% and 3% in real terms. The study also established that the Sharpe ratio was insignificantly negative in the short term and significantly negative in the long term. This implies that the pension fund industry failed to significantly grow member contributions for meaningful benefits. These findings also mean that DC pension funds will only provide minimal benefits while DB pension funds might have challenges in meeting their obligations. The study recommends that prospective retirees engage in other wealth-generating activities to supplement the retirement package from the pension fund industry. It is also recommended that the government collaborates with training institutions to equip prospective retirees with the financial literacy skills needed for successful investment and entrepreneurial undertakings. The study further recommends that policymakers and fund managers need to reflect on policy guidelines and investment strategies in the industry if pension funds are to provide meaningful benefits for income replacement and consumption smoothing in the deccumulation phase.

Keywords

Value Creation, Financial Performance, Member Contributions, Pension Fund, Financial Education, Pension Benefits

1. Introduction

Pension funds play a critical role in income replacement and consumption smoothing in the decumulation phase of retirees (Mitchell & Turner, 2009). The industry also facilitates the movement of financial resources in the economy by channeling funds to firms and entrepreneurs with positive returns on investment projects and business opportunities. This brings about economic efficiency up to the ability of fund managers to identify and ration available funds by the value maximization criterion. This study evaluated the extent to which pension funds can effectively create value on member contributions and maximize the funds available in the predominantly consumption phase of the individual life cycle of retirees. A high rate of return is indicative of a well-performing industry that can efficiently allocate available resources in the most beneficial way (Van Horne & Wachowicz, 2008).

Pension funds can either be Defined Benefit (DB) or Defined Contribution (DC) depending on how benefits due are determined (Muralidhar, 2001). In a DB Pension fund, an employee is guaranteed a specific stream of payments after retirement regardless of the performance of the investments. In a DC pension plan, the employee has a specified contribution to the plan but not a specified benefit, so the benefits available solely depend on the performance of the portfolio. The employee bears the risk of investment performance in DC pension funds (Reilly & Brown, 2012). Regardless of the type of pension fund, investment performance is a critical determinant of the health of the pension fund system.

Many pension systems have realized the need for pension benefits to be supported by an asset pool created over the pensioners' working lives. Heinz et al. (2010) provide that there has been a general migration from DBs to DCs over time to lessen fiscal pressure on governments in the administration of pension funds. However, this general trend is at the expense of the quality and quantity of pension benefits available to the pensioner and creates pressure on fund managers to create more wealth for the pensioners to receive meaningful benefits. This move also increases the exposure of primary investors to investment performance dynamics. Thus the pensioner bears the risk of having insufficient wealth from pension funds in the decumulation phase. The majority of national pension schemes are predominantly DBs while the majority of private pension funds are DCs in Zambia (Committee on Economic Affairs and Labor, 2009).

The pension fund industry is very instrumental to the well-being and development of the Zambian economy. While Zambia has the vision to be an industrialized middle-income country by 2030 (GRZ, 2006), one of the main impediments to this is the lack of long-term finance to support industrialization (UNIDO, 2020). Gondwe & Adam (2014) state that the Pension fund industry is just second to the Banking sector in providing long-term capital financial intermediation for entrepreneurs and firms with viable investment opportunities in Zambia. Thus, the realization of the vision 2030 and economic well-being is subject

to the viability of the pension fund industry as an integral source of long-term finance. The industry is regulated by the Pensions and Insurance Authority (PIA) and guided by the Pension Scheme Regulation Act of 1996. Apart from the National Pension Scheme Authority (NAPSA), all the other schemes are supposed to be registered with the PIA. Pension fund portfolio regulation in Zambia follows the prudent person principle and quantitative restrictions on the portfolio (Pablo & Waldo, 2010). The quantitative restrictions on pension fund portfolios are provided for in the Pension Scheme Regulations of 2021 (Investment Guidelines, 2021).

Previous studies have indicated that the pension fund industry has had challenges in providing meaningful benefits and meeting its obligations in Zambia (Lungu, 2009; Daka, 2018). However, these studies did not specify the extent to which the funds can grow the contributions to facilitate retirement planning in Zambia. Gondwe and Adam (2014) claim that one of the main challenges facing pension funds in Zambia is the inadequacy of fund assets to meet assessed liabilities. This claim is in line with the findings of the Committee on Economic Affairs and Labor (2009). The committee recounted the failures of pension funds in Zambia to satisfactorily meet their obligations. The committee also identified many challenges facing pension funds which include actuarial deficits, delayed remittance of contributions and payment of benefits, non-inclusion of the informal sector to the pension scheme system, costs related to supervision and administration, and insufficiently developed capital markets. A study by Lungu (2009) found that the financial performance of private pension funds in Zambia was also affected by macroeconomic conditions.

Limited formal sector and delayed remittances of contributions in Zambian pension funds imply that member contributions are not a reliable source to create capacity for pension funds to meet their obligations and provide meaningful benefits to their members. The International Labour Organization (ILO) and the Organization for Economic Cooperation and Development (OECD) established that the informal sector accounted for about 88.7% of the employed population in Zambia (ILO & OECD, 2019). This means that only 11.3% of the working population contributes to the pension fund industry. To minimize dependence on member contributions to support the asset base of pension funds, fund managers must design and implement viable investment portfolios that can generate a good return on investment.

1.1. Statement of the Problem

Retirement planning calls for financial strategies that promote savings and investment activities that will generate sufficient wealth to sustain the quality of life in retirement. The pension fund industry is a critical vehicle for retirement planning among other savings alternatives (Altfest, 2004). Through the asset pool created over an individual's working life, the pension fund industry plays a critical role in smoothing out the quality of life in the retirement phase (Mitchell

& Turner, 2010; Yohane et al., 2022). This is dependent on the extent to which pension funds can create value on member contributions through investment activities (Hlaváč, 2011). However, a knowledge gap on the extent to which the pension fund industry can grow member contributions exists in Zambia. An understanding of the pension fund growth potential of member contributions facilitates appropriate savings and investment behavior to maximize available wealth in the deccumulation phase. The lack of this important information makes it difficult for policymakers to proactively deal with the well-being of retirees by ensuring that sufficient wealth is made available during the working life of individuals. The subjectivity and absence of mandatory minimum performance targets for the pension fund industry in Zambia exacerbated the need for this study.

1.2. General Objective

To understand the extent to which the pension fund industry can grow member contributions in Zambia.

This study is significant because it facilitates prospective retirees engaging in informed retirement planning by understanding the expected wealth from the pension fund industry. The study also bridges the knowledge gap to ensure that all decision-makers and stakeholders in the industry make informed and evidence-based decisions related to the well-being of retirees. Furthermore, the study provides a basis for evaluating the efficacy of fund management strategies and policies in the pension fund industry.

The remainder of the paper is organized as follows: Section two presents the review of literature; this is followed by the methodology in section three and the results and discussion in section four. Section five presents the conclusions and the recommendations. The paper ends with the acknowledgements in section six and the reference list in section seven.

2. Literature Review

2.1. Empirical Literature Review

Levy and Post (2005) define a pension fund as an asset pool that accumulates over the working years of an employee. This definition emphasizes the need to grow or accumulate assets for the members to receive meaningful benefits to smooth out the consumption pattern in retirement. This is even though pension fund income need not be the only source of income in retirement (VanDerhei, 2006). Unless the pension fund industry can generate sufficient income replacement wealth for retirement, investment in pension funds by individuals and institutions is a waste of resources. This view is also supported by Montreal (2017) who state that all good investment activities should generate positive returns and grow the wealth of investors. Asset growth in pension funds has been a subject of concern to many from various perspectives among researchers, policymakers,

and academicians.

Pension fund financial performance describes the extent to which the fund can generate sustainable profits (Bailey et al., 2007; Van Horne & Wachowicz, 2008; Edem, 2017). The positive performance of pension funds contributes to the growth of the asset pool available to pensioners at retirement. The performance also contributes to capacity building for funds to provide meaningful benefits. Tonks (2006) argues that the performance of pension funds is of great importance as it determines the amount available for payment and retirement benefits. Gondwe and Adam (2014) add that a viable and profitable pension fund industry contributes to economic well-being through financial intermediation. Clemens et al. (2015) stress that the viability of the pension fund industry creates positive externalities on other institutions such as mutual funds in which pension funds hold investments. In affirmation to Clemens et al. (2015), Musawa & Mwaanga (2017) established that increased pension fund investments in stock markets enhanced the performance and growth of the Lusaka Securities Exchange (LuSE) in Zambia.

Gondwe & Adam (2014) provides that the pension fund industry is important to the Zambian economy to the extent that it is only second to the banking sector in financial intermediation. This implies that access to financial resources for firms and entrepreneurs to implement their business activities depends on the profitability, sustainability, and growth of the pension fund industry to a large extent. Fund managers have a great responsibility of building institutional capacity for pension funds to meet both the long-term and short-term obligations. Montreal (2017) stresses that pension funds should aim for high returns on investments by deploying capital to the right investments. Consequently, particular attention should be paid to all factors that influence positive fund performance if managers are to ensure that pension funds remain relevant and contribute effectively to economic wellbeing. To effectively do this, managers, policymakers, pensioners and other stakeholders need to understand the extent to which pension funds are growing the savings of pensioners and map out strategies that will ensure substantial asset growth and secured benefits for prospective and current pensioners.

The use of clearly identifiable benchmarks in evaluating the financial performance of pension funds is unavoidable since performance is a relative measure. Common benchmarks include the risk-free rate, the equity portfolio, the fixed income portfolio, or the absolute zero (Walker & Iglesias, 2010; Lo, 2002). The yield on a long-term government bond is also a typical benchmark for evaluating pension fund performance (Tschampion et al., 2007; Walker & Iglesias, 2010). Bagliano et al. (2010) argue that pension performance should be evaluated against welfare indicator benchmarks and not just simple rates of return because pensioners are influenced by other factors other than risk and return. Heinz et al. (2010) state that an explicitly stated model benchmark established by regulators

would enhance the performance of pension funds. The absence of such benchmarks leaves it open for fund managers to settle for simplicity and any benchmark that make them look better.

Policymakers should create an enabling environment for fund managers to effectively grow pension fund assets. Through regulation, fiscal policy, and monetary policy, the government influences investment activities and the financial performance of pension funds (Hurd & Rohweder, 2020; Clemens et al., 2015). Regulating pension fund asset allocation affects financial performance (Mwandemena, 2006; Lungu, 2009). Understanding the extent to which pension funds are growing member contributions enables policymakers to reflect on the policies regulating the function of the funds. With increasing levels of life expectancy, Heinz et al. (2010) predict a continued upward adjustment of retirement age by policymakers to provide relief on pension obligations. The retirement age in Zambia was adjusted upwards from 55 years to 65 in 2014 and later revised to 60 years in 2015 with 55 years and 65 years as options for early and late retirement, respectively (Public Service Regulations, 2014; Public Service Regulations, 2015). Deferring pension obligations through retirement age adjustment is but a temporal solution that always catches up with the funds to honor their obligation. The real solution lies in the policymakers creating an enabling environment for pension funds to thrive through profitable investment activities in Zambia.

The introduction of a guaranteed minimum return on member contributions dampens the volatility of retirement outcomes (Sin, 2002; Mitchell & Turner, 2010). On the contrary, Pablo & Heinz (2010) argue that such regulations and policies only make it difficult for managers to design optimal portfolios. This is contrary to the expectation that such policies would motivate managers to operate efficiently over and above the required minimum. Dariusz (2015) submits that the concept of target retirement income in pension funds mitigates any possible misalignment of objectives and conflict of interest between retirement savers and fund managers. Since pension funds are intended to provide income in retirement, Mitchell & Turner (2010) argue their performance should be evaluated against the income replacement rate (IRR) generated. This is a ratio of annual retirement benefits to the pre-retirement annual income in the active work life of the pension beneficiary (VanDerhei, 2006; OECD, 2009).

Even though pension fund income is never meant to be the only source of income in retirement (VanDerhei, 2006), Boateng (2015) argues that it is the main source of retirement income for many retirees the world over. VanDerhei (2006) further provides that individuals should target an income replacement rate of not less than 75% in retirement. Andrew & Glenn (2008) add that the overall income replacement rate of about 70% is generally acceptable for retirement planning. According to Banda (2017), occupation pension funds are supposed to provide a minimum of 20% income replacement ratio to retirees. This implies

that the replacement rate targeted by occupation pension funds in Zambia is too low for the prospective pensioner in Zambia to have sufficient income in retirement. This also entails that a pensioner in Zambia should not only depend on social security income in retirement but complement this income with other sources.

An evaluation of the performance of pension funds has produced mixed results using different techniques and benchmarks. Walker and Iglesias (2010) explored the financial performance of pension fund systems in eleven (11) countries and found that pension systems were able to deliver significant risk premiums per unit of volatility. A study by Boateng (2015) established that the pension funds in Ghana underperformed on market returns in absolute terms but outperformed the risk-adjusted benchmarks. A study in Latvia and Estonia established that pension funds failed to consistently outperform the stock or composite index benchmarks over the period of analysis (Lieksnis, 2010). A comparison of the financial performance of Czech private pension funds with other funds within Central Eastern Europe established that most pension funds performed poorly against the long-term benchmark of the 10-year government bond (Hlaváč, 2011).

2.2. Theoretical Literature Review

Capital Asset Pricing Model

The Capital Asset Pricing Model (CAPM) hypothesizes that the expected return increases with an increase in the level of portfolio risk. Thus, in the presence of a riskless asset, the expected return on a risk portfolio should have a market risk premium on the risk-free rate (Van Horne & Wachowicz, 2008). Where this theory holds, a well-managed risky pension fund portfolio should always generate a positive risk premium return on investment that is over and above the risk-free rate. This model assumes that the fund manager has the freedom to design optimal portfolios that maximize the return for primary investors. Therefore, any restriction to this assumption may lead to the failure of pension funds to generate a return higher than the riskless government-issued assets. Various studies attributed the poor performance of pension funds to regulation on minimum return guarantees (Hlaváč, 2011; Pablo & Heinz, 2010) and portfolio allocation constraints (Muia, 2015; Lungu, 2009; Mwandemena, 2006). Therefore, in a conducive investment environment with appropriate management skills, pension fund portfolios should perform better than government riskless assets according to the CAPM.

2.3. Literature Gap

The literature review shows that the research results on the evaluation of the financial performance of pension funds are inconclusive. While some studies established that pension funds were able to create value on member contributions through positive financial performance (Walker & Iglesias, 2010; Boateng, 2015),

other studies concluded that pension funds created insignificant value on member contributions (Lieksnis, 2010; Hlaváč, 2011; Njeru et al., 2015). Furthermore, most of the studies conducted in developing economies established that pension schemes were underperforming on various benchmarks. However, very few studies investigated the financial performance of the industry beyond the measurement level of the indicators to understand the magnitude or depth of the problem. This understanding facilitates appropriate behavioral responses from the stakeholders in the industry. The theoretical prediction of pension fund financial performance is also challenged by the restrictive environment within which pension funds operate (Hlaváč, 2011; Muia, 2015), hence the need for a study that provides an empirical perspective. This study fills up these gaps by analyzing the short-term and long-term significance of the Sharpe ratio in the Zambian pension fund industry.

3. Methodology

3.1. Research Design

The descriptive design was adopted for this study. This design enabled the researcher to systematically describe the extent of value creation in Zambian pension funds. This design is suitable for defining and understanding the status quo of a given situation (Creswell, 2009; Saunders et al., 2009; Kombo & Tromp, 2016), hence appropriate for the study.

3.2. Population

The population for this study was defined by all pension funds under the regulation of the PIA for the period between 2011 and 2020. This period was selected as the period of effect for the Investment Guidelines (2011) to ensure policy consistency in the industry. Furthermore, the period provided sufficient stacked data for quantitative analysis (Green, 2012).

3.3. Sampling and Sampling Procedures

The study considered a census of all the registered pension funds over the period of interest so sampling was not necessary. To be considered for evaluation, a particular fund should have operated during the whole period under consideration. A total of 39 pension funds qualified under this criterion.

3.4. Data Collection

Stacked data on individual pension funds were obtained from audited financial statements submitted to the PIA over the period of interest. Data on the rate of return on the 10-year government bond and 91-day Treasury Bills was obtained from the Bank of Zambia (BoZ). The use of stacked data was more appropriate for a young pension fund industry to bridge the limitation of insufficient data (Baltagi, 2021).

3.5. Data Analysis

The annual yield on funds invested (ROA) was used as an absolute measure of pension fund financial performance. This measure was also used by Boateng (2015) as an indicator of pension fund performance in Ghana. The Sharpe ratio (SR) was used as a risk-adjusted measure of financial performance. Brealey et al. (2011) define the Sharpe ratio as a risk premium per unit of volatility. This measure shows the excess return on risk-free rate (R_f) for any additional risk taken by the investor. The rate of return on a 91-day government Treasury bills and the 10-year government bond were used as proxies for the short-term and long-term risk-free rates, respectively. Due to the assumed volatility of the riskless asset returns in the long term, a modified Sharpe ratio used by Walker & Iglesias (2010) was adopted in this study. Equation (1) shows the determination of the Sharpe ratio obtained by dividing excess returns by the standard deviation of excess returns.

$$\text{SR} = \frac{\text{ROA} - R_f}{\text{SD}_{(\text{ROA}-R_f)}} \tag{1}$$

Equation (2) was used to estimate the confidence interval for the industry Sharpe ratio at 95% level of Confidence, where T is equal to the total number of observations.

$$\mu_{\text{SR}} = \text{SR} \pm 1.96 \sqrt{\left(1 + \frac{1}{2}\text{SR}^2\right)\Big/ T} \tag{2}$$

The absolute zero model developed by Lo (2002) was used to test the significance of growth in member contributions. This was achieved by testing the significance of the Sharpe ratio at 5% level of significance. Hlaváč (2011) adds that the model is always effective as long as the stationarity assumption of the data set is not violated. To avoid spurious results and conclusions in testing the significance of the Sharpe ratio, the Aikake Information Criteria (AIC) and the Levin-Lin-Chu panel data unit root tests were used to ensure the optimum lag selection and data stationarity, respectively. Equation (3) was used to estimate the observed Z statistic.

$$Z = \frac{\text{SR} - \mu_{\text{SR}}}{\sqrt{\left(1 + \frac{1}{2}\text{SRSR}^2\right)\Big/ T}} \tag{3}$$

4. Results and Discussion

4.1. Descriptive Statistics

Table 1 shows the summary statistics of the key variables in this study. All the variables in the table have leptokurtic distributions according to kurtosis measures of more than 3 (Salvatore & Reagle, 2002). This implies that the observations are clustered around the mean with minimal variation and highly peaked distributions. The table shows that a total of 390 observations were made. These

Table 1. Descriptive statistics.

VARIABLE	ER1	ER2	ROA	RROA	SR1	SR2
Mean	−8.4735	−0.0596	12.1329	2.6996	−0.7084	−0.0049
Median	−8.9495	−0.2321	11.2704	2.2856	−0.7482	−0.0193
Maximum	84.0644	87.5568	108.6894	90.4810	7.0278	7.2683
Minimum	−124.908	−111.759	−96.3456	−112.028	−10.4424	−9.2774
Std. dev.	11.9616	12.0464	10.7795	11.7690	1.0000	1.0000
Kurtosis	38.2673	32.4153	50.0999	37.3545	38.2673	32.4153
Observations	390	390	390	390	390	390

Source: Authors from Eviews Outputs.

observations are sufficient for making unbiased conclusions based on statistical analysis following the Central Limit Theorem. The table also shows that the average yield on funds invested (ROA) over the period of the analysis is 12.13%. This means that the pension fund industry was able to grow the contributions of members by 12.13% on average per annum. When compared with the annual inflation rates, the table shows that the average annual real rate of return (RROA) is 2.70%. This implies that pension funds were able to grow member contributions by 2.70% over and above the average annual inflation rates.

When compared with the performance of government short-term and long-term securities, the table reveals that government securities in Zambia outperform the pension fund industry. The table shows deficient excess returns (ER) on average pension fund performance. The table also reveals a negative Sharp ratio (SR) or excess return per unit of volatility on both the short-term and long-term government securities. This means that the performance of the pension fund industry in Zambia was insufficient for the risk level of fund investments. It also means that the fund managers failed to create value on member contributions consistent with the risk profiles of the industry investments. This finding is contrary to the capital asset pricing model which hypothesizes that risk portfolios should always outperform government riskless investments. This finding is consistent with the earlier conclusions that the pension fund industry in Zambia had viability challenges and underperforming (Lungu, 2009; Gondwe & Adam, 2014; Daka, 2018).

4.2. Unit Root Testing

The Levin-Lin-Chu test was used to determine the stationarity of the Sharpe ratio. This test evaluated the null hypothesis (H_0) of non-stationarity against an alternative hypothesis (H1) of data stationarity. Table 2 shows the hypothesis test results of both the long-term Sharpe ratio (SR1) and the short-term Sharpe ratio (SR2). The results show that all the panels are stationary at the level. This implies that the dataset has consistent means and volatility over time, thus making it possible to generalize results on the risk-adjusted performance beyond the

Table 2. Unit root testing with Levin, Lin, and Chu method.

VARIABLE	Test Statistic	Probability	Significance	Decision
SR1	−7.0892	0.0000	0.05	Reject H_0
SR2	−10.0975	0.0000	0.05	Reject H_0

Source: Authors from Eviews Outputs.

period of analysis. As a pre-estimation test, it also means that the dataset is suitable for estimating the significance of the long-term and short-term Sharpe ratios using the Sharpe ratio standard error developed by Lo (2002).

4.3. Confidence Interval of the Sharpe Ratio (SR1 and SR2)

Equation (2) was used to estimate the long-term and short-term confidence interval of the Sharpe ratio of the industry at 95% level of confidence. The results show that the long-term Sharpe ratio is expected to be a negative value between −0.714 and −0.703.

$$-0.714 \leq \mu_{SR1} \leq -0.703$$

This entails that the pension fund industry is expected to underperform on long-term riskless government security. This also implies that the pension fund industry fails to create value on fund assets that are consistent with the risk level of fund investments.

The short-term Sharpe ratio is expected to fall between −000997 and 0.000079.

$$-0.00997 \leq \mu_{SR2} \leq 0.000079$$

This means that the financial performance of the pension fund industry is expected to underperform the short-term riskless asset with the possibility of the former outperforming the latter marginally.

This means that the financial performance of the pension fund industry is expected to underperform the short-term riskless asset with the possibility of the former outperforming the latter marginally.

4.4. Significance of the Sharpe Ratio (SR1 and SR2)

Table 3 shows the test results of the significance of the Sharpe ratio in the long term (SR1) and the short term (SR2). A two-tailed test null hypothesis of insignificant Sharpe ratio (SR) against an alternative hypothesis of significant Sharpe ratio (SR) was done at 5% level of significance. The test results show that the observed Z statistic in the long term is −247.0147 and less than the critical Z of −1.96. This means that SR1 is significant at 5% level of significance and the null hypothesis is rejected. This also implies that the financial performance of the pension fund industry is significantly poor with the risk level of fund investments and long-term government securities. This finding is consistent with the confidence interval estimation at 95% level of confidence which predicts a negative Sharpe ratio long term.

Table 3. Significance test of the Sharpe ratio.

VARIABLE	Z_O	Z_C	Significance	Decision
SR1	−247.0147	±1.96	0.05	Reject H_0
SR2	−1.929	±1.96	0.05	Reject H_1

Source: Authors from Eviews Outputs.

The observed Z-Score for the short term was found to be −1.929 against the critical Z scores of −1.96 and 1.96. This means that the null hypothesis of insignificant performance cannot be rejected in the short term. It also implies that the performance of the pension fund industry is insignificant to grow member contributions and provide meaningful benefits. This finding is inconsistent with other studies that established significant risk premiums in pension funds (Walker & Iglesias, 2010; Boateng, 2015).

The significance test results also indicate that the financial performance of the industry is negatively insignificant in the short term and significantly negative in the long term. Similar findings were also established by other researchers outside Zambia (Gallo, 2008; Hlaváč, 2011; Njeru et al., 2015) and attributed this to ineffective management decision-making and poor regulation among other factors. Walker and Iglesias (2010) argued that the effect of management decision-making and regulation on pension fund financial performance, cannot easily be separated. Similarly, the underperformance and failure of the pension fund industry in Zambia to create value on member contributions may be attributed to fund management deficiencies or regulation, or both. However, without a thorough attribution analysis of the industry's financial performance, the main explanatory variable may not be conclusive.

5. Conclusions and Recommendations

5.1. Conclusions

This study concludes that the pension fund industry in Zambia is able to preserve the value of member contributions over and above the inflation rate. The industry is also able to grow member contributions in absolute terms. However, the financial performance of the industry is inconsistent with the risk undertakings of the industry as it is underperforming on both short-term and long-term government securities. It is also concluded that the pension fund industry is not satisfactorily serving its purpose of facilitating for a comfortable quality of life in retirement by significantly growing member contributions. Thus, it is difficult for the industry to provide meaningful benefits for retirement. DC pension funds are expected to only provide minimal benefits while DB pension funds will have challenges in meeting their obligations to their members. Deliberate actions and policies are needed to uplift the financial performance of pension funds in Zambia if these institutions are to remain relevant and contribute to the well-being of retirees and the economy at large. Without any evidence-based turnaround poli-

cies and management strategies, investment in form of contributions to these institutions for retirement is a waste of resources. The findings in this study also entail that if retirees are to have a comfortable quality of life in the deccumulation phase, they should consider other retirement income alternatives beyond retirement packages from pension funds since the industry is not growing the savings significantly for meaningful benefits and retirement wealth.

5.2. Recommendations

To ensure a comfortable quality of life in retirement and a viable pension fund industry in Zambia, the following recommendations are made:

- The government, through the regulator, should introduce objective annual financial performance targets for the industry to minimize agency problems between fund managers and prospective pensioners. This will ensure that fund managers always work to meet or exceed target expectations and grow member contributions significantly rather than settling for targets that make them look better.
- Fund managers need to review their investment management strategies to ensure that adopted techniques can contribute positively to growing fund assets and member contributions in both the short term and the long term.
- The government should collaborate with Universities and Colleges to train both prospective and current pensioners in financial literacy skills and retirement planning beyond expected retirement packages from the pension fund industry. This will ensure that retirees are equipped to consider other wealth-generating alternatives and grow their income for a comfortable quality of life in retirement. Furthermore, this training will also create capacity for prospective pensioners to monitor pension fund investment activities and minimize any possible agency problems in the industry.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Altfest, L. (2004). Personal Financial Planning: Origins, Developments and a Plan for Future Direction. *The American Economist, 48,* 53-60. https://doi.org/10.1177/056943450404800204

Andrew, G. B., & Glenn, R. S. (2008). Alternate Measures of Replacement Rates for Social

Security Benefits and Retirement Income. *Social Security Bulletin, 68,* 1-19.

Bagliano, F., Fugazza, C., & Nicodano, G. (2010). Pension Funds, Life-Cycle Asset Allocation, and Performance Evaluation. In H. Richard, P. R. Heinz, A. Pablo, & Y. Juan (Eds.), *Evaluating the Financial Performance of Pension Funds* (pp. 159-201). The World Bank.

Bailey, J. V., Richards, T. M., & Tierney, D. E. (2007). Evaluating Portfolio Performance. In J. L. Maginn, D. L. Tuttle, D. L. McLeavey, & J. L. Pinto (Eds.), *Managing Investment Portfolios: A Dynamic Process* (3rd ed., pp. 717-782). John Wiley & Sons.

Baltagi, B. H. (2021). *Econometric Analysis of Panel Data* (6th ed.). Springer Nature. https://doi.org/10.1007/978-3-030-53953-5

Banda, J. (2017). *Contributory Legal Provisions for the Aged, Coverage and Reforms.* Ministry of Labour and Social Security.

Boateng, K. (2015). *Evaluating the Performance of Pension Funds: A Case Study of Social Security and National Insurance Trust.* Kwame Nkrumah University of Science and Technology.

Brealey, R. A., Myers, S. C., & Allen, F. (2011). *Principles of Corporate Finance* (10th ed.). McGraw-Hill/Irwin.

Clemens, S., Laura, S., & Hanjiang, Z. (2015). Defined Contribution Pension Plans: Mutual Fund Asset Allocation Changes. *American Economic Review: Papers and Proceedings, 105,* 432-436. https://doi.org/10.1257/aer.p20151006

Committee on Economic Affairs and Labor (2009). *Second Report of the Committee on Economic Affairs and Labor for the Fourth Session of the Tenth National Assembly Appointed on 24th September 2009.* National Assembly. https://www.parliament.gov.zm

Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). Sage Publications.

Daka, M. (2018). *Evaluating the Performance of Pension Schemes in Zambia.* The University of Zambia.

Dariusz, S. (2015). *The Concept of Target Retirement Income: Supervisory Challenges.* International Organisation of Pension Supervisors (IOPS). http://www.iopsweb.org/wp_25_target-retirement-income.pdf

Edem, D. B. (2017). Liquidity Management and Performance of Deposit Money Banks in Nigeria (1986-2011): An Investigation. *International Journal of Economics, Finance and Management Sciences, 5,* 146-161. https://doi.org/10.11648/j.ijefm.20170503.13

Gallo, A. (2008). The Performance of Pension Funds: The Case of Italy. *Investment Management and Financial Innovations, 5,* 25-32.

Gondwe, M., & Adam, C. S. (2014). *Zambia: Building Prosperity from Resource Wealth* (P. Collier, Ed.). Oxford University Press.

Green, W. H. (2012). *Econometric Analysis* (7th ed.). Pearson Education Limited.

GRZ (2006). *Vision 2030: A Prosperous Middle-Income Nation.* Government of the Republic of Zambia.

Heinz, P. R., Richard, H., Pablo, A., & Juan, Y. (2010). Evaluating the Financial Performance of Pension Funds. In P. R. Heinz, H. Richard, A. Pablo, & Y. Juan (Eds.), *Evaluating the Financial Performance of Pension Funds* (pp. 1-23). The World Bank. https://doi.org/10.1596/978-0-8213-8159-5

Hlaváč, J. (2011). *Financial Performance of the Czech Private Scheme: Its Current Position and the Comparison with Other CEE Countries.* IES Working Paper: 9/2011, Institute of Economic Studies.

Hurd, M. D., & Rohwedder, S. (2010). *Effects of the Financial Crisis and Great Recession on American Households* (No. w16407). National Bureau of Economic Research.

ILO, & OECD (2019). *Informality and Poverty in Zambia: Findings from the 2015 Living Conditions and Monitoring Survey, October 2018.* International Labour Office.

Investment Guidelines (2011). *The Pension Scheme (Investment Guidelines) Regulations, 2011 (SI 2011/141).* The Government of Zambia.

Investment Guidelines (2021). *The Pension Scheme (Investment Guidelines) Regulations, 2021 (SI 2021/50).* The Government of Zambia.

Kombo, D. K., & Tromp, D. L. (2016). *Proposal and Thesis Writing: An Introduction.* Paulines Publications Africa.

Levy, H., & Post, T. (2005). *Investments.* Pearson Education Limited.

Lieksnis, R. (2010). Evaluating the Financial Performance of Latvian and Estonian Second-Pillar Pension Funds. *Research in Economics and Business: Central and Eastern Europe, 2,* 54-74.

Lo, A. W. (2002). The Statistics of Sharpe Ratios. *Financial Analysts Journal, 58,* 36-52. https://doi.org/10.2469/faj.v58.n4.2453

Lungu, F. (2009). *An Assessment of the Viability of Occupational Pension Schemes in Zambia.* The Copperbelt University.

Mitchell, O. S., & Turner, J. A. (2009). *Labor Market Uncertainty and Pension System Performance*. Wharton Pension Research Council Working Papers, 332. https://repository.upenn.edu/prc_papers/332

Mitchell, S. O., & Turner, A. J. (2010). Labor Market Uncertainty and Pension System Performance. In H. Richard, P. R. Heinz, A. Pablo, & Y. Juan (Eds.), *Evaluating the Financial Performance of Pension Funds* (pp. 119-156). The World Bank.

Montreal, P. (2017). *Issues and Challenges Facing Pension Funds in the Current Market Environment*. https://www.cdpq.com/en/news/articles/

Muia, F. M. (2015). *The Effect of Asset Allocation on the Financial Performance of Pension Funds in Kenya.* University of Nairobi.

Muralidhar, A. S. (2001). *Innovations in Pension Fund Management.* Stanford University Press.

Musawa, N., & Mwaanga, C. (2017). The Impact of Pension Funds' Investments on the Capital Market—The Case of Lusaka Securities Exchange. *American Journal of Industrial and Business Management, 7,* 1120-1127. https://doi.org/10.4236/ajibm.2017.710080

Mwandemena, T. C. (2006). *A Test of McKinnon's Complementarity Hypothesis with Application to the Zambian Pension Fund Industry (1997-2004).* The Copperbelt University.

Njeru, S. E., Njeru, M. D., & Kasomi, F. (2015). Evaluation of Financial Performance on Portfolio Holdings Heldo by Pension Funds in Kenya. *European Scientific Journal, 11,* 145-160.

OECD (2009). *Pensions at a Glance: Public Policies across OECD Countries.* Organization for Economic Cooperation and Development.

Pablo, A., & Waldo, T. (2010). Investment Performance of Privately Management Pension Funds. In H. Richard, P. R. Heinz, A. Pablo, & Y. Juan (Eds.), *Evaluating the Financial Performance of Pension Funds* (pp. 25-37). The World Bank.

Pablo, C., & Heinz, P. R. (2010). Portfolio Choice, Minimum Return Guarantees, and

Competition in Defined Contribution Pension Systems. In H. Richard, R. P. Heinz, A. Pablo, & Y. Juan (Eds.), *Evaluating the Financial Performance of Pension Funds* (pp. 97-118). The World Bank.

Public Service Regulations (2014). *The Public Service Regulation (Retirement Age), 2014 (SI 2014/63)*. The Government of the Republic of Zambia. https://www.ilo.org

Public Service Regulations (2015). *The Public Service (Retirement Age) (Amendment) Regulations, 2015 (2015/24)*. The Government of the Republic of Zambia. https://www.pmrczambia.com/wp-content/uploads/2015/07/the-public-service-retirement-age-amendment-regulations-2015-statutory-instrument-no.-24-of-2015.pdf

Reilly, F. K., & Brown, K. C. (2012). *Investment Analysis & Portfolio Management* (10th ed.). South-Western Cengage Learning.

Salvatore, D., & Reagle, D. (2002). *Theory and Problems of Statistics and Econometrics* (2nd ed.). McGraw-Hill.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students* (5th ed.). Prentice Hall.

Sin, Y. (2002). Minimum Pension Guarantees. In *Seminar for Social Security Actuaries and Statisticians: Actuarial Aspects of Pension Reform.* International Social Security Association.

Tonks, I. (2006). Pension Fund Management and Investment Performance. In G. L. Clark et al. (Eds.), *Oxford Handbook of Pensions and Retirement Income* (pp. 456-480). Oxford University Press. https://www.researchgate.net/publication/29810763 https://doi.org/10.1093/oxfordhb/9780199272464.003.0023

Tschampion, R. C., Siegel, L. B., Takahashi, D. J., & Maginn, J. L. (2007). Managing Institutional Investor Portfolios. In J. L. Maginn, D. L. Tuttle, D. W. McLeavey, & J. E. Pinto (Eds.), *Managing Investment Portfolios: A Dynamic Process* (pp. 63-127). John Wiley & Sons.

UNIDO (2020). *Programme for Country Partnership: Industrial Diagnostic Study Zambia 2020.* United Nations Industrial Development Organization. https://www.unido.org

Van Horne, J. C., & Wachowicz, J. M. (2008). *Fundamentals of Financial Management* (13th ed.). Prentice Hall.

VanDerhei, J. (2006). Measuring Retirement Income Adequacy: Calculating Realistic Income Replacement Rates. *EBRI Issue Brief, No. 297,* 1-35.

Walker, E., & Iglesias, A. (2010). Financial Performance of Pension Fund Systems around the World: An Exploratory Study. In H. Richard, R. Heinz, A. Pablo, & Y. Juan (Eds.), *Evaluating the Financial Performance of Pension Funds* (pp. 39-94). The World Bank.

Yohane, R., Mwanza, B. G., & Chowa, T. (2022). Adequacy, Affordability and Sustainability of Pensions in Higher Learning Institutions in Zambia. *Journal of Business and Management, 10,* 2768-2789. https://doi.org/10.4236/ojbm.2022.105137