A Critical Evaluation of Determinants of Pension Fund Performance in Kenya

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Abstract

Purpose: This study examines the influence of corporate governance, investment strategy, and macroeconomic factors on the financial performance of pension funds in Kenya from 2012 to 2022.

Methodology: Using a mixed-methods approach, the study combines primary survey data with secondary macroeconomic data. Governance and investment strategy were measured through survey-based indices, while macroeconomic variables were sourced from national datasets. A multi-equation analytical framework assessed direct, mediating, and moderating effects.

Findings: The findings show that corporate governance significantly enhances pension fund performance, with investment strategy mediating this relationship. Macroeconomic factors also significantly affect returns, though their impacts vary across variables.

Unique Contribution to Theory, Practice and Policy: The study extends Agency Theory, Stakeholder Theory, Modern Portfolio Theory, and Arbitrage Pricing Theory to a developing-country pension context, showing that they jointly explain pension fund ROI. It finds that corporate governance, investment strategy, and macroeconomic factors collectively influence performance. Stakeholder involvement improves returns, investment strategy mediates the governance–performance link, and macroeconomic factors moderate this relationship, offering practical insights for enhancing pension fund sustainability.

Keywords: *Corporate Governance, Financial Performance, Macroeconomic Factors, Investment Strategy*

1.Introduction

The performance of pension funds in Kenya is a growing concern due to their importance in retirement security and financial system stability. Pension assets account for about 13% of GDP. Although regulatory reforms by the Retirement Benefits Authority have improved governance and oversight, a number of pension schemes continue to underperform. Corporate governance has emerged as a critical issue following global financial failures, yet evidence on its impact on pension fund performance remains limited and inconclusive. Available empirical evidence worldwide shows that pension fund performance is also influenced by investment strategies and macroeconomic factors. The study examined the individual and combined effects of corporate governance, investment strategy, and macroeconomic factors on the financial performance of pension schemes in Kenya.

Corporate Governance (CG)

Corporate governance (CG) has gained increasing prominence due to its central role in shaping firms' operational frameworks and strategic direction (Garzón Castrillón, 2021). This evolution underscores core governance principles of transparency, accountability, fairness, and ethical conduct, which are essential for fostering stakeholder trust and enhancing organizational performance. Although no universally accepted definition of CG exists, it is broadly understood as the system by which organizations are directed and controlled. Carmichael and Palacios (2003) describe governance as the processes through which organizations pursue objectives while managing stakeholder conflicts. In the pension sector, the International Organisation of Pension Supervisors (IOPS) defines governance as the framework guiding board structures, decision-making processes, competencies, and accountability mechanisms (IOPS, 2008–2009). These principles are further reinforced by institutions such as the G20/OECD to promote financial stability and sustainable growth.

Empirical evidence links effective CG to improved performance and reduced agency problems (Shleifer & Vishny, 1997; Chow, 2005). Its importance in pension schemes is heightened by fiduciary duties and long-term obligations. Crises such as the Asian financial crisis and corporate failures like Enron exposed the risks of weak governance structures (Stewart & Yermo, 2008), prompting reforms including the Sarbanes–Oxley Act and Kenya's Retirement Benefits Authority Act. Although such reforms have strengthened oversight, pension fund performance remains mixed, suggesting that regulatory reforms alone may not guarantee optimal outcomes (Ambachtsheer, 2001; Useem & Mitchell, 2000; Eisenhardt, 1989).

Investment Strategy (IS)

Investment strategy refers to a structured approach to portfolio selection that aligns investment objectives with acceptable levels of risk and return, considering investors' goals, risk tolerance, time horizon, and economic conditions (Bilaus, 2010). As a core component of portfolio

management, it is vital to the performance and long-term sustainability of pension funds, which constitute a significant segment of the global investment industry (Tonks, 2006)..

Pension fund investments are exposed to various risks, including market, inflation, credit, solvency, governance, and regulatory risks, all of which may threaten retirement income adequacy (Obermann, 2005). An effective investment strategy mitigates these risks while enhancing expected returns through mechanisms such as diversification, strategic asset allocation, active and passive management, portfolio limits, indexing, market timing, international diversification, and risk control (Raz, 2005, Urwin, 2010). Given differences in liability structures, return objectives, and risk appetite, no single strategy is universally appropriate for all pension schemes.

International best practice, as advocated by the Organisation for Economic Co-operation and Development (OECD) and the Committee of European Insurance and Occupational Pension Supervisors (CEIOPS), emphasizes the adoption of a formal investment policy statement aligned with legal and regulatory frameworks. Such policies typically define investment objectives, permissible asset classes, performance benchmarks, and oversight mechanisms for fund managers. Regulatory regimes strongly shape investment strategies. Mitch, 2006 observes that less developed markets often impose quantitative investment limits, whereas advanced systems apply the prudent person rule, which prioritizes fiduciary responsibility and risk-based supervision (Antolin, 2008; Tapia & Waldo, 2008a). As noted by Stewart (2010) weak risk management practices during the global financial crisis contributed to suboptimal pension fund performance. In Kenya, despite the pension sector's notable contribution to GDP, empirical evidence on the relationship between investment strategy and pension fund performance remains limited.

Macroeconomic Factors

Macroeconomic factors comprise broad economic, financial, and geopolitical conditions that shape aggregate economic performance and remain largely beyond the control of individual firms (Flannery & Protopapadakis, 2002; Fischer, 1993; Brinson et al., 2009). They include GDP growth, inflation, interest rates, exchange rates, money supply, and unemployment. Sharan (2009) discerns that these factors significantly influence capital markets and investment outcomes. Investment and financing decisions are strongly conditioned by prevailing macroeconomic environments. Investors incorporate macroeconomic information into portfolio construction to enhance risk-adjusted returns (Khaparde, 2014). Conversely, economic uncertainty and adverse macroeconomic shocks may suppress investment activity and contribute to underinvestment (Kahraman, 2011; Liu & Pang, 2009).

The theoretical linkage between macroeconomic variables and asset returns is grounded in the Arbitrage Pricing Theory of Stephen Ross (1976). The theory posits that expected returns are determined by multiple systematic risk factors reflecting macroeconomic conditions, which cannot be fully diversified. Empirical studies across developed and emerging markets support this proposition, demonstrating significant effects of macroeconomic variables on stock market and

firm performance (Fama, 1990; Mookerjee & Yu, 1997; Kwon & Shin, 1999; Humpe & Macmillan, 2007; Bodie et al., 2008). In Kenya, evidence indicates a significant association between firm performance and movements in the Nairobi Securities Exchange index (Olweny & Omondi (2011); Ochieng & Oriwo (2012). However, empirical research specifically examining the impact of macroeconomic variables on pension fund performance in Kenya remains limited, warranting further investigation.

Pension Schemes in Kenya

Pension schemes in Kenya are long-term social protection arrangements that provide income security in old age, disability, or death while mobilizing long-term savings for investment. Beyond their welfare function, pension schemes act as major institutional investors by mobilizing long-term savings and channeling them into productive investments that support broader economic development. They are classified as public or private, occupational or personal, and defined benefit (DB) or defined contribution (DC) or provident fund structures (Davis, 1995). The system is regulated by the Retirement Benefits Authority (RBA) and comprises four pillars: the Public Service Pension Scheme, the National Social Security Fund (NSSF), occupational pension schemes, and individual pension plans. Occupational schemes are employer-sponsored and trust-based, form the largest segment and may operate as standalone or umbrella schemes (Bodie et al., 1988). Individual plans serve the self-employed and those without employer-sponsored coverage.

The sector has grown significantly in both the number of registered schemes and assets under management. The total fund value across all retirement schemes in Kenya grew from KSh 697 billion in 2013 to Ksh 1,688 billion in 2022 (RBA,2023). Since the enactment of the Retirement Benefits Authority Act 1997, regulation and governance have strengthened, enhancing member protection and promoting long-term sustainability.

Research Problem

Regional market crises and corporate failures over the past two decades, including the 1997 Asian Financial Crisis and the 2008 Global Financial Crisis, have demonstrated the vulnerability of retirement savings due to weak oversight. While global reforms have been implemented, the relationship between governance structures and pension fund performance remains statistically inconclusive. In Kenya, despite the enactment of the Retirement Benefits Authority (RBA) Act in 1997 aiming to protect member interests, significant weaknesses persist, highlighted by instances of asset misappropriation and oversight failures at institutions such as Kenya Medical Research Institute (KEMRI), the National Social Security Fund (NSSF), and the Kenya Ports Authority (KPA) pension schemes. The problem was exacerbated by agency conflicts, strategic inconsistency in investment approaches under RBA guidelines, and macroeconomic volatility in a high-inflation environment, factors that may counteract robust governance frameworks.

Existing literature is heavily focused on developed economies, providing limited insight into the interplay of these variables in developing markets, while local research is often narrow, focusing

only on governance or investment strategy. This study addresses this gaps by analyzing both the individual and joint impacts of these factors on pension fund performance, generating evidence to strengthen governance, optimize investment decisions, and ensure sustainable retirement outcomes in a developing economy context.

Research Objectives

The main objective of this study is to assess the relationship between the financial performance of occupational pension funds and the factors CG, IS, and macroeconomic variables in Kenya for the period 2012-2022. Specifically, the study sought to:

i.   Examine the effect of CG on the market value of occupational pension funds.

ii. Determine the moderating role of IS in the relationship between CG and the financial position of occupational pension funds.

iii. Assess the influence of selected macroeconomic variables on the relationship between CG and the financial position of occupational pension funds.

iv. Evaluate the combined effect of CG, IS, and macroeconomic factors on the financial position of occupational pension funds.

Theoretical Foundation of the Study

Agency Theory (AT)

Agency Theory (Jensen & Meckling, 1976) explores the principal–agent relationship, where trustees and fund managers (agents) are delegated decision-making authority by contributors and beneficiaries (principals). Conflicts arise when agents pursue self-interests that diverge from principals' objectives, generating agency costs that can undermine fund performance. Governance mechanisms such as monitoring, accountability, and incentive alignment mitigate these conflicts, with optimal contracts and oversight enhancing organizational value (Eisenhardt, 1989; Jensen & Meckling, 1976; Maher & Andersson, 2000). Pension funds are particularly vulnerable due to ownership control separation and reliance on professional managers, making strong governance crucial for efficiency and financial outcomes (Fan, 2004). Despite critiques of its shareholder-centric focus, Agency Theory remains a pertinent framework for analyzing pension fund governance and performance (Donaldson, 1990; Aguilera et al., 2008).

Stakeholder Theory (ST)

Stakeholder Theory (SHT) frames pension fund governance as a balancing act among contributors, beneficiaries, trustees, managers, regulators, and employers (Freeman, 1984). Effective governance through transparency, independent oversight, and regulatory compliance aligns managerial actions with stakeholder interests, enhancing accountability and long-term fund performance (Donaldson & Preston, 1995; Blair, 1995). While stronger governance mechanisms

are expected to improve financial outcomes, conflicts among stakeholder objectives and unclear performance benchmarks can limit their effectiveness (Friedman, 1984; Heath & Norman, 2004).

Modern Portfolio Theory (MPT)

Modern Portfolio Theory (MPT) (Markowitz, 1952) links pension fund performance to investment strategy by emphasizing diversification and risk–return optimization. The theory posits that efficient portfolios are achieved through optimal asset allocation across imperfectly correlated assets, thereby managing both systematic and unsystematic risk (Sharpe, 1964; Lintner, 1965). For occupational pension funds, effective implementation of MPT depends on governance quality, as strong CG aligns trustees' and fund managers' decisions with beneficiaries' long-term objectives, fostering prudent asset allocation. Weak governance, by contrast, may lead to suboptimal strategies and excessive risk exposure. Thus, MPT complements Agency Theory by providing a mechanism through which governance affects performance, supporting the hypothesis that investment strategy mediates this relationship.

Arbitrage Pricing Theory (APT)

The Arbitrage Pricing Theory (APT) explains asset returns as a function of multiple systematic macroeconomic risk factors rather than a single market factor (Ross (1976). These economy-wide risks such as inflation, interest rates, and GDP growth cannot be diversified away and therefore significantly influence portfolio performance.

Empirical studies by Richard Roll (1980) and Nai-Fu Chen (1986) confirm that macroeconomic variables systematically affect asset returns. For long-term institutional investors like pension funds, exposure to these factors materially shapes financial performance. Although APT does not specify exact risk factors and depends on model specification, it provides a flexible framework for analyzing how macroeconomic conditions interact with CG and IS to influence pension fund performance.

Empirical Literature review

Corporate Governance and Pension Performance

Corporate governance (CG) research has largely focused on developed economies such as the United States and member states of the Organisation for Economic Co-operation and Development (OECD), where strong shareholder rights, effective legal systems, and independent boards are associated with higher firm value and improved performance (Gompers et al., 2001; La Porta et al., 2001). Scholars such as Besley and Prat, (2003); Mitchell and Yang, (2005); and Zahra and Pearce (1989) aver that sound governance practices, particularly board independence and effective oversight are also linked to enhanced pension fund performance. Nevertheless, evidence on the CG–performance nexus remains mixed. While some studies report positive effects, others find weak or inconclusive relationships due to methodological variations, measurement challenges, and contextual factors such as ownership structure and board composition (Renders et al., 2010; Daines

& Klausner, 2001; Larcker et al., 2007). Additionally, corporate failures have shown that governance mechanisms alone may not prevent crises (Clarke, 2009). In emerging markets, robust CG practices are especially important where legal protections are weaker, as they help reduce information asymmetry and improve financial outcomes ((Klapper & Love, 2002). African evidence, though limited, similarly indicates that ownership concentration, board independence, and audit quality significantly influence firm performance (Ehikioya, 2007; Darko, 2014).

In Kenya, research on CG and pension performance remains limited. Existing studies suggest that board structure and executive compensation affect pension fund outcomes (Mutegi, 2014), while broader evidence from listed firms and state agencies shows that ownership concentration, board composition, and meeting frequency enhance performance ((Njuguna, 2011; Ongore & Kobonyo, 2011; Miring'u, 2011; Lishenga, 2012). Whereas CG is widely recognized as a critical determinant of organizational and pension fund performance, significant gaps persist in the Kenyan context, particularly regarding its interaction with investment strategy and macro-institutional factors, highlighting the need for more comprehensive, context-specific empirical studies.

Corporate Governance, Investment Strategy and Pension Performance

Empirical evidence indicates that CG influences pension fund performance, often indirectly through IS, though findings are mixed. In emerging markets, well-governed firms attract investor premiums, yet the role of trustees in shaping investment decisions remains underexplored (Khanna and Zyla (2012). Studies from developed economies show that strong governance enhances asset allocation and fund performance (Useem and Mitchell, 2008). Manuel and Christian (2017) observe a weak but positive association between CG, asset allocation, and market value in Swiss occupational pension plans. Ambachtsheer, Capelle, and Scheibelhut (1998) similarly show that governance quality enhances investment decisions and fund performance. In Poland, trustee board characteristics composition, education, and age significantly affect the market value of defined contribution funds (Jackowicz & Kowalewski, 2012), highlighting the importance of robust governance practices.

Investment regulations further interact with governance, as portfolio restrictions can constrain returns, contributing to underperformance in some markets. Davis and Hu (2008) attribute Canadian pension fund underperformance relative to the UK and US to portfolio restrictions, while Ippolito and Turner (1987) note persistent underperformance of US funds against market benchmarks, consistent with the Efficient Markets Hypothesis. Despite extensive research in developed contexts, comparable studies are scarce in developing countries like Kenya, motivating an integrated examination of CG, IS and pension fund outcomes.

Corporate Governance, Macroeconomic factors and Pension Performance

Recent research findings show that macroeconomic variables such as GNP, industrial production, inflation, interest rates, and exchange rates significantly influence stock and pension fund performance across developed and emerging markets (Chen (1991), Black, Fraser, and MacDonald

(1997) and Kwon and Shin (1999). Muhammad and Rasheed (2002) found that interest rates positively affected stock returns in Bangladesh and Sri Lanka but had no significant impact in India and Pakistan. Singh (2010) reported positive associations between exchange rates, industrial production, and inflation with the BSE Sensex, though only industrial production exhibited bilateral causality.

Studies in Kenya and emerging markets indicate that pension fund returns are sensitive to macroeconomic shifts, highlighting incomplete market pricing of information (Muhammad & Rasheed (2002); Singh (2010); Olweny and Omondi (2011); Ochieng and Oriwo (2012); Wanjiku (2012). Yet, the combined effects of CG, macroeconomic factors, and IS on pension performance remain unexplored, motivating this study..

Empirical evidence on the joint effect of CG, IS and macroeconomic factors on pension performance

Studies exploring the joint effect of CG, IS, and macroeconomic factors on pension-fund performance remain limited in both developed and emerging markets. Prior studies often report mixed or contradictory findings, which many authors attribute to analyses that consider only one or two variables at a time and therefore omit important confounding factors, leading to mixed, inconclusive, or contradictory findings. To address this gap, the present study adopts a multifactor framework that simultaneously models CG, IS, and macroeconomic determinants to assess their combined and interactive effects on the financial performance of occupational pension funds in Kenya.

The Conceptual Framework

Fig. 1: The Conceptual Model
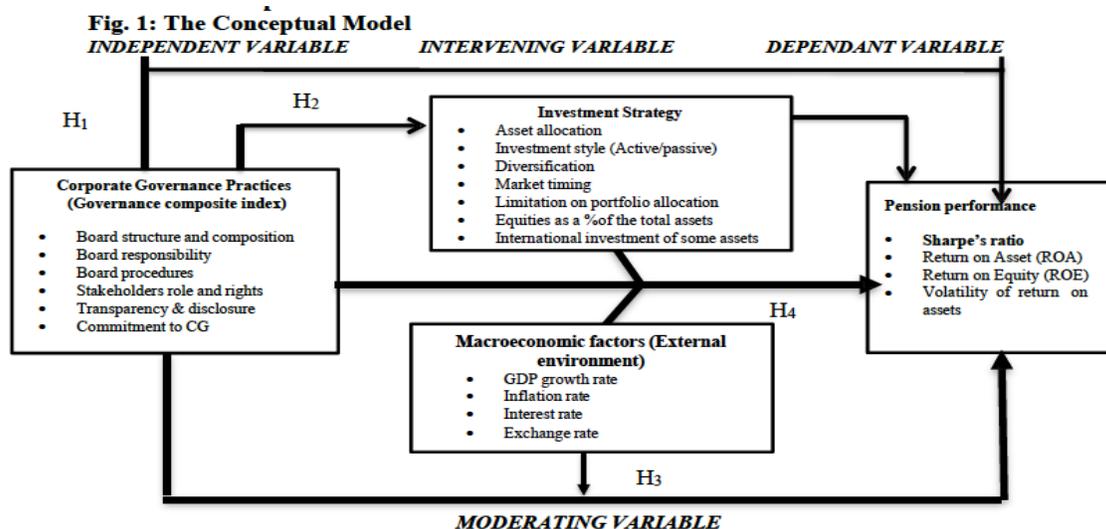
Source: Author, 2025

Hypotheses

The proposed study tested the below hypotheses in Kenya:

i) H_1: Good corporate governance is positively associated with pension-fund financial performance.

ii) H_2: Investment strategy has significant intervening influence on the link between governance and market value of occupational pension plans.

iii) H_3: Macroeconomic shocks have significant moderating effect on the link between governance and pension-fund financial performance.

iv) H_4: The joint effect of CG, investment strategy and macroeconomic variables has a significant relationship on pension fund financial performance.

Research methodology

Research Design

This study employed a mixed-methods design, integrating qualitative and quantitative approaches to examine how CG structures, IS and macroeconomic factors affect pension fund performance. Qualitative data from in-depth interviews and document reviews informed the construction of CG and IS indices, capturing participants' perceptions and organizational practices. Quantitative analysis, using descriptive, correlational, longitudinal, and survey methods, assessed the magnitude and direction of relationships between these indices and pension fund performance.

Population of the Study

The research population comprised 1306 public and private occupational pension funds registered with the RBA as at 31st December 2018 organised as either individual or umbrella pension schemes. The unit of analysis was each of the individual or umbrella pension fund.

Sample of the Study

The study employed random sampling to ensure results could be generalized to the population. The target population comprised 73 pension schemes registered with the Retirement Benefits Authority (RBA) as of 31st December 2022, including 41 individual and 32 umbrella schemes. The sample size was estimated using Cochran's (1963) formula ($n\_0 = Z^2 \, pq/e^2$) with Z=1.96(95% confidence), p=0.5, and e=0.05, yielding a required sample of 61 schemes.

Data Collection

The study employed both primary and secondary data covering 2012–2022, a period of significant pension regulatory reforms. Secondary data on pension fund assets, investment returns, and macroeconomic indicators including GDP, inflation, exchange rates, the NSE 20 Share Index, corporate bond yields, and Treasury bill rates were sourced from fund records, annual reports, the Central Bank of Kenya, KNBS, and the Capital Markets Authority.

Primary data were collected via structured questionnaires to construct CG and IS indices. The CG Index, a proxy for governance effectiveness, combined governance structures and practices with standards from established codes of best practice. The IS index, a proxy for effectiveness of IS

employed in influencing fund growth comprised various investment strategies. Respondents comprised key stakeholders directly involved in governance and investment, including trustees, fund managers, administrators, custodians, and actuaries.

Data Analysis

The unit of analysis was individual pension funds. Data was analyzed in two stages. First there was descriptive analysis that entailed computations of frequency distributions, mean scores, standard deviations and coefficient of variation of the pension fund /assets value, and the volatility of gross real return of the pension funds. Secondly, the analysis involved testing for relationships between and among variables to establish their nature and magnitude. This involved multiple regression analyses, Pearson's product moment and analysis of variance (Baron & Kenny, 1986) for this model:

Pension Financial Performance = a + b_1CG+ b_2IS + b_3Macro + e.

Where CG = Corporate Governance; IS = Investment Strategy; Macro = Macroeconomic factors; e= error term. Below are the regression models and the hypotheses tested.

Data Presentation and Hypotheses testing

Path analysis/Stepwise regression analysis

This is a statistical method of testing cause/effect relationships entailing four steps

Step 1: $Y = a_0 + \beta_1 X_1 + \varepsilon$

Step 2: $Me = a_0 + \beta_1 X_1 + \varepsilon$

Step 3: $Y = a_0 + \beta_2 Me + \varepsilon$

Step 4: $Y = a_0 + \beta_2 Me + \beta_1 X_1 + \varepsilon$

Where

Y = composite score for financial performance

a_0 = regression constant

X = composite score for corporate governance indicator

Me = mediating factor composite score for IS

R^2 = Pearson's product moment correlation R

Step one: Testing the effect of CG indicators on the combined ROI of pension funds.

Step 1: $Y = a_0 + \beta_1 X_1 + \varepsilon$

H_1: CG has a significant relationship with the combined ROI of pension funds in Kenya.

Table 1: Model Summary of effect of CG on the combined ROI of pension funds

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R square change	F Change	df1	df2	Sig. F change	
1	.602a	.362	.271	43.63799	.362	3.977	7	49	.002	1.993

a. Predictors: (Constant), Stakeholders interests in board decisions, Board structure and composition, Commitment to Corporate governance, Shareholder´s Rights, Role of stakeholders, Disclosure and transparency, Board Responsibilities

b. Dependent Variable: Combined ROI of pension funds

Source: Author's primary analysis (2025)

Step one of the mediation analysis assessed the direct effect of CG on the combined ROI of pension funds, excluding the IS Index. The regression model explained 36.2% of the variance in ROI (R^2 = 0.362; Adjusted R^2 = 0.271), indicating a moderate effect size (Srinivasan, 2020) driven by Board Structure and Composition, Board Responsibilities, Shareholders' Rights, Disclosure and Transparency, Commitment to CG, Role of Stakeholders, and Stakeholders' Interests (Table 1). While these CG factors significantly impact financial performance, the majority of variance (63.8%) remains attributable to other internal or external influences.

Table 2: ANOVAª of the relationship between CG and the combined ROI of pension funds

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	53017.341	7	7573.906	3.977	.002b
	Residual	93309.450	49	1904.274		
	Total	146326.791	56			

a. Dependent Variable: Combined ROI of pension funds

b. Predictors: (Constant), Stakeholders interests in board decisions, Board structure and composition, Commitment to Corporate governance, Shareholder´s Rights, Role of stakeholders, Disclosure and transparency, Board Responsibilities

Source: Author's primary analysis (2025)

The ANOVA results shown in Table 2 reveal that the overall regression model is statistically significant, $F(7, 49) = 3.977$, $p < .05$, indicating that the set of independent variables reliably predicts the dependent variable combined ROI of pension funds.

Table 3: Coefficient of the relationship between CG and the combined ROI of pension funds

Coefficients

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Partial	Part	Collinearity Statistics Tolerance	VIF
1	(Constant)	-35.689	22.902		-1.558	.126					
	Board structure and composition	53.518	69.951	.256	.765	.448	.366	.109	.087	.116	8.621
	Board Responsibilities	-66.058	54.893	-.326	-1.203	.235	.245	-.169	-.137	.178	5.631
	Shareholder´s Rights	-15.084	25.867	-.075	-.583	.562	-.170	-.083	-.067	.792	1.263
	Disclosure and transparency	46.419	43.249	.230	1.073	.288	.302	.152	.122	.283	3.538
	Commitment to Corporate governance	-9.610	15.185	-.074	-.633	.530	-.133	-.090	-.072	.959	1.043
	Role of stakeholders	95.770	32.643	.421	2.934	.005	.539	.387	.335	.632	1.582
	Stakeholders interests in board decisions	25.162	20.104	.147	1.252	.217	.200	.176	.143	.945	1.058

Source: Author's primary analysis (2025)

Findings from the coefficient estimates in Table 3 show that only the Role of Stakeholders (RS) was a statistically significant predictor (t = 2.143, p < .05), showing a positive effect on combined ROI of pension funds. This suggests that effective stakeholder involvement plays a critical role in enhancing pension fund performance. In addition, the results reveal that the other variables were statistically insignificant predictors. Board structure and composition, Disclosure and transparency, and Stakeholders' interests in board decisions had positive effect but p > .05 while Board Responsibilities, Shareholders' Rights, and Commitment to Corporate Governance had negative effect but p > .05. Taking into account the statistical significance levels, the parsimonious predictor model for the combined ROI of pension funds is therefore specified as:

$$\text{Combined ROI} = \beta_0 + \beta_1(\text{Role of Stakeholders}) + \varepsilon$$

Where:

- β_0 is the constant term,

- β_1 represents the coefficient of the Role of Stakeholders, and

- ε is the error term.

Based on the regression coefficients, the predictive model nonetheless, is specified as bellow:

Combined ROI of Pension Funds = −35.689 + 53.518(BS&C) − 66.058(BR) − 15.084(SR) + 46.419(D&T) − 9.610(CCG) + 95.770(RS) + 25.162(SIBD)

The implication of the ANOVA Table 2 findings which, indicates that relationship between CG indicators and the combined ROI of pension funds is significant with $F_{(7,49)} = 3.977$, $p < .05$ is that it enables one to proceed to step 2.

Step two: Testing the relationship between CG indicators and IS Index

Step 2: Me= $a_0 + \beta_1 X_1 + \varepsilon$

H_2: Investment strategy has a significant intervening effect on the relationship between governance and financial performance of pension plans.

Table 4: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R square change	F Change	df$_1$	df$_2$	Sig. F change	
1	.955a	.911	.899	5.57871	.911	72.006	7	49	<.001	1.441

a. Predictors: (Constant), Stakeholders interests in board decisions, Board structure and composition, Commitment to Corporate governance, Shareholder´s Rights, Role of stakeholders, Disclosure and transparency, Board Responsibilities

b. Dependent Variable: IS Index

Source: Author's primary analysis (2025)

The results on Table 4 of the second step of the mediation analysis reveal that the model demonstrates a very high predictive power, with an R^2 **of .911**. This indicates that 91.1% of the variation in the Investment Strategy (IS) Index is explained by the CG indicators.

Table 5: ANOVAª of the relationship between CG indicators and the index

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.921	7	.560	71.819	<.001b
	Residual	.382	49	.008		
	Total	4.304	56			

a. Dependent Variable: IS INDEX

b. Predictors: (Constant), Stakeholders interests in board decisions, Board structure and composition, Commitment to Corporate governance, Shareholder´s Rights, Role of stakeholders, Disclosure and transparency, Board Responsibilities

Source: Author's primary analysis (2025)

The results in the ANOVA Table 5 show that the overall model is statistically significant $(7,49)=71.819, p<.001$), meaning the combination of governance predictors effectively predicts the mediator (IS Index).

Table 6: Coefficients of IS Index and CG indicators Model

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-.181	.046		-3.906	<.001					
	Board structure and composition (BS&C)	.712	.142	.629	5.032	<.001	.944	.584	.214	.116	8.621
	Board Responsibilities	.200	.111	.182	1.802	.078	.884	.249	.077	.178	5.631
	Shareholder´s Rights	.032	.052	.029	.614	.542	.082	.087	.026	.792	1.263
	Disclosure and transparency	.121	.088	.111	1.382	.173	.810	.194	.059	.283	3.538
	Commitment to Corporate governance	-.034	.031	-.047	-1.092	.280	-.007	-.154	-.046	.959	1.043
	Role of stakeholders (RS)	.142	.066	.115	2.143	.037	.559	.293	.091	.632	1.582
	Stakeholders interests in board decisions	-.017	.041	-.018	-.410	.683	-.014	-.059	-.017	.945	1.058

Source: Author's primary analysis (2025)

The results in Table 6 indicate that only two of the seven CG indicators exert a statistically significant effect on IS: i) BS&C (t = 5.032, p < 0.001); and ii) RS (t = 2.143, p = 0.037). The other CG indicators had no significant effect and thus failed the criteria for mediation, the Baron and Kenny mediation framework. Nonetheless, mediation analysis proceeded to Step Three on the basis of the significant effects of BS & C and the RS on the IS Index. Based on the estimated coefficients, the predictive regression model is specified as follows:

IS Index = -0.181+0.712(BS&C)+0.200(BR)+0.032(SR)+0.121(D&T)-0.034(CCG)+0.142(RS) - 0.017(SIBD)

Step three of testing the relationship between combined ROI of pension funds and investment strategy (IS Index)

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Table 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R square change	F Change	df1	df2	Sig. F change	
1	.429a	.184	.169	46.59898	.184	12.386	1	55	<.001	2.160

a. Predictors: (Constant), IS Index
b. Dependent Variable: Combined ROI of pension funds

Source: Author's primary analysis (2025)

Table 7 reveals that the IS Index accounts for 18.4% of the variation in pension fund ROI (R^2 = 0.184). Despite its modest effect size (Srinivasan, 2020), the relationship is statistically significant ($F(1,55) = 12.386$, $p < 0.001$) with no residual autocorrelation (Durbin–Watson = 2.160). This confirms that the IS Index meaningfully influences ROI, satisfying the third condition for mediation.

Table 8: ANOVAª of the relationship between Combined ROI of pension funds and IS Index

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26,896.217	1	26,896.217	12.386	<.001b
	Residual	119,430.574	55	2171.465		
	Total	146,326.791	56			

a. Dependent Variable: Combined ROI of pension funds
b. Predictors: (Constant), IS Index

Source: Author's primary analysis (2025)

The F-statistic, which tests the overall significance of the regression model, shows that the model is statistically significant, as evidenced by the F-statistic of **12.386** ($df = 1,55$) and a p-value of **< .001**. The model therefore significantly predicts the combined ROI of pension funds (Table 8).

Table 9: Coefficients of Combined ROI of pension funds and IS Index, Predictor Impact

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	-7.084	12.842		-.553	.583			
	IS Index	79.179	22.455	.429	3.526	<.001	.429	.429	.429
a. Dependent Variable: Combined ROI of pension funds									

Source: Author's primary analysis (2025)

Table 9 shows that the IS Index significantly predicts pension fund performance (t = 3.526, p < 0.001). The model: Combined ROI = −7.084 + 79.179IS Index

Following Baron and Kenny's (1986) steps, conditions for mediation were met, prompting analysis of investment strategy's mediating role between CG and fund performance.

Step four of testing the relationship between Combined ROI of pension funds, corporate governance indicators and investment strategy (IS Index)

Step 4: Y= a_0 + β_2Me + $\beta_1 X_1$ + ε

In this final step, regression of the dependent variable (Y) on both the independent variable (X) and the mediator (M) simultaneously. Observation was then done on the significance of the direct effect (the relationship between X and Y while controlling for M)

Table 10: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R square change	F Change	df1	df2	Sig. F change
1	.637a	.405	.306	42.582	.405	4.087	8	48	<.001
a. Predictors: (Constant), IS INDEX, Commitment to Corporate governance, Stakeholders interests in board decisions, Shareholder´s Rights, Role of stakeholders, Disclosure and transparency, Board Responsibilities, Board structure and composition									
b. Dependent Variable: Combined ROI of pension funds									

Source: Author's primary analysis (2025)

The study results indicate that the coefficient of determination (R^2) for the overall model in step four was 0.405, with an adjusted R^2 of 0.306, signifying a moderate effect size of the model as per Srinivasan (2020) criteria, where values below 0.30 indicate a weak effect, values between 0.30 and 0.50 indicate a moderate effect, and values above 0.70 indicate a strong effect (Table 10). This implies that 30.6% of the variation in the combined ROI of pension funds is explained by the regression model, which is a linear combination of CG indicators and the IS Index.

Table 11: ANOVAª of the relationship between Combined ROI of pension funds, CG indicators and investment strategy (IS Index)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59,291.006	8	7,411.376	4.087	<.001ᵇ
	Residual	87,035.785	48	1,813.246		
	Total	146,326.791	56			

a. Predictors: (Constant), IS INDEX, Commitment to Corporate governance, Stakeholders interests in board decisions, Shareholder´s Rights, Role of stakeholders, Disclosure and transparency, Board Responsibilities, Board structure and composition
b. Dependent Variable: Combined ROI of pension funds

Source: Author's primary analysis (2025)

The ANOVA results (Table 11) show that the overall regression model is statistically significant ($F(8,48) = 4.087, p < .001$), meaning the predictors collectively have a significant impact on the dependent variable. Consequently, the model significantly predicts the combined ROI of pension funds. IS drives returns through asset allocation and risk management in line with the MPT, but its effectiveness depends on governance structures that align trustees' decisions with beneficiaries' interests, consistent with the Agency theory.

Table 12: Coefficients of Combined ROI of pension funds, CG indicators and investment strategy (IS Index), the Predictor Impact

Coefficientsª

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	-12.490	25.593		-.488	.628			
	Board structure and composition	-37.750	84.064	-.181	-.449	.655	.366	-.065	-.050
	Board Responsibilities	-91.704	55.311	-.452	-1.658	.104	.245	-.233	-.185
	Shareholder´s Rights	-19.205	25.338	-.095	-.758	.452	-.170	-.109	-.084
	Commitment to Corporate governance	-5.311	14.996	-.041	-.354	.725	-.133	-.051	-.039
	Role of Stakeholders	77.630	33.312	.341	2.330	.024	.539	.319	.259
	Stakeholders interests in board Decisions	27.301	19.652	.159	1.389	.171	.200	.197	.155
	IS INDEX	128.119	68.878	.695	1.860	.069	.429	.259	.207

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a. Dependent Variable: Combined ROI of pension funds

Source: Author's primary analysis (2025)

Table 12 presents the regression coefficients of the model indicating the impact of individual predictors. The findings reveal that only the Role of Stakeholders demonstrated a significant positive effect on the Combined ROI ($t = 2.330, p < .05$). However, all other CG indicators and the IS Index were found to be non-significant predictors of Combined ROI in this model. The predictor model taking into account the significance levels is as specified below:

Combined ROI of pension funds = -12.490 - 37.750 BS&C- 91.704BR - 19.205 SR + 30.918 D&T - 5.311 CCG + 7 7.630 RS + 27.301SIBD + 128.119 IS

The stepwise analysis of the moderating effect of macroeconomic variables on the relationship between CG indicators and the combined ROI of pension funds

Table 13: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
					R square change	F Change	df1	df2	Sig. F change	
1.	.539a	.290	.277	43.45326	.290	22.496	1	55	<.001	
2.	.603b	.363	.340	41.53071	.073	6.210	1	54	.016	
3.	.662c	.438	.407	39.37951	.075	7.061	1	53	.010	
4.	.713d	.509	.471	37.18350	.070	7.445	1	52	.009	1.964

a. Predictors: (Constant), Role of stakeholders
b. Predictors: (Constant), Role of stakeholders, NSE 20 Share Index
c. Predictors: (Constant), Role of stakeholders, NSE 20 Share Index, Inflation (%)
d. Predictors: (Constant), Role of stakeholders, NSE 20 Share Index, Inflation (%), GDP Growth Rate (%)
e. Dependent Variable: the combined ROI of pension funds

Source: Author's primary analysis (2025)

Table 13 shows that adding interaction terms significantly improved the models, explaining an extra 7–7.5% of variance in ROI across Models 2–4. The effects are driven by interactions involving the NSE 20 Share Index, Inflation Rate, and GDP Growth Rate. All increases are statistically significant ($p < .05$), confirming these macroeconomic variables moderate the link between CG and pension fund performance.

Table 14: ANOVAᵃ of the moderating effect of macroeconomic variables on the relationship between CG indicators and the combined ROI of pension funds

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42,476.570	1	42,476.570	22.496	<.001b
	Residual	103,850.221	55	1,888.186		
	Total	146,326.791	56			
2	Regression	53,187.612	2	26,593.806	15.418	<.001c
	Residual	93,139.180	54	1,724.800		
	Total	146,326.791	56			
3	Regression	64,137.277	3	21,379.092	13.786	<.001d
	Residual	82,189.514	53	1,550.746		
	Total	146,326.791	56			
4	Regression	74,430.932	4	18,607.733	13.458	<.001e
	Residual	71,895.860	52	1,382.613		
	Total	146,326.791	56			

a. Dependent Variable: the combined ROI of pension funds

b. Predictors: (Constant), Role of stakeholders

c. Predictors: (Constant), Role of stakeholders, NSE 20 Share Index

d. Predictors: (Constant), Role of stakeholders, NSE 20 Share Index, Inflation (%)

e. Predictors: (Constant), Role of stakeholders, NSE 20 Share Index, Inflation (%), GDP Growth Rate (%)

Source: Author's primary analysis (2025)

The ANOVA Table 14 shows that all four regression models are statistically significant at the 1% level ($p < .001$), confirming their effectiveness in predicting the combined ROI of pension funds. The results also indicate that adding more predictors progressively improves the models' explanatory power. Predictive Equations for the models:

   i)   Model 1: ROI= -12.250+122.579(RS)

   ii) Model 2: ROI=-131.407+119.485(RS)+0.034(NSE20)

   iii) Model 3: ROI=-1.200+106.432(RS)+0.049(NSE20)-27.886(Inf)

   iv) Model 4: ROI=38.714+109.841(RS)+0.068(NSE20)-29.974(Inf)-23.366(GDP)

Regression analysis of the moderating effect of macroeconomic variables on the relationship between CG indicators and the combined ROI of pension funds

Table 15: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R square change	F Change	df1	df2	Sig. F change	
1	.885a	.784	.705	27.77042	.784	9.916	15	41	<.001	1.457

a. Predictors: (Constant), Unemployment rate, Shareholder´s Rights, Board structure and composition, Commitment to Corporate governance, Stakeholders interests in board decisions, GDP Growth Rate (%), Role of stakeholders, Balance of Payments, Inflation (%), Exchange rate (KS/US$), Disclosure and transparency, Commercial Banks weighted average lending interest rates (%), Board Responsibilities, CBK 91-Day T Bill, NSE 20 Share Index

b. Dependent Variable: the combined ROI of pension funds

Source: Author's primary analysis (2025)

Table 15 shows that the full model explains 78.4% of the variation in pension funds' combined ROI (adjusted $R^2 = 0.705$), indicating a strong effect size. Including all CG and macroeconomic variables simultaneously significantly improves explanatory power, increasing R^2 from 51.0% in the stepwise model to 78.4% in the full model.

Table 16: The ANOVA[a] of the relationship between Combined ROI of pension funds, CG indicators and macroeconomic variables

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	114,707.750	15	7647.183	9.916	<.001b
	Residual	31,619.041	41	771.196		
	Total	146,326.791	56			

a. Dependent Variable: the combined ROI of pension funds

b. Predictors: (Constant), Unemployment rate, Shareholder´s Rights, Board structure and composition, Commitment to Corporate governance, Stakeholders interests in board decisions, GDP Growth Rate (%), Role of stakeholders, Balance of Payments, Inflation (%), Exchange rate (KS/US$), Disclosure and transparency, Commercial Banks weighted average lending interest rates (%), Board Responsibilities, CBK 91-Day T Bill, NSE 20 Share Index

Source: Author's primary analysis (2025)

The F-statistic indicates that at $\alpha = .01$ the regression is statistically significant, as the p-value is less than 0.001. Accordingly, the model significantly predicts the combined ROI of pension funds, with $F(15, 41) = 9.916$, $p < .001$ (Table 16).

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Table 17: The Predictor Impact

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	Constant)	3765.447	1340.057		2.810	.008		
	Board structure and composition	65.836	45.846	.315	1.436	.159	.109	9.144
	Board Responsibilities	-59.126	36.245	-.292	-1.631	.110	.165	6.062
	Shareholder´s Rights	-16.420	16.824	-.081	-.976	.335	.758	1.319
	Disclosure and transparency	5.267	29.363	.026	.179	.859	.248	4.027
	Commitment to Corporate governance	2.280	10.412	.017	.219	.828	.826	1.211
	Role of stakeholders	50.620	22.231	.222	2.277	.028	.552	1.812
	Stakeholders interests in board decisions	11.292	13.372	.066	.844	.403	.865	1.156
	GDP Growth Rate (%)	39.113	20.035	.508	1.952	.058	.078	12.840
	Inflation (%)	-298.125	43.908	-3.253	-6.790	<.001	.023	43.558
	Exchange rate (KS/US$)	-142.011	23.363	-8.710	-6.079	<.001	.003	389.578
	Commercial Banks weighted average lending interest rates	248.618	42.849	4.680	5.802	<.001	.008	123.432
	CBK 91-Day T Bill	1477.433	298.888	8.259	4.943	<.001	.002	529.691
	Balance of Payments,	-8066.328	1354.306	-4.534	-5.956	<.001	.009	109.930
	NSE 20 Share Index	-2.087	.365	-16.670	-5.713	<.001	.001	1615.517
	Unemployment rate	-73.318	78.120	-.604	-.939	.353	.013	78.659

Source: Author's primary analysis (2025)

Model: Moderating Effect of Macroeconomic Factors

Combined ROI of Pension Funds =	$3765.447 + 65.836 \text{ BS\&R} - 59.126 \text{ BR} - 16.420 \text{ SR} + 5.267 \text{ D\&T} + 2.280 \text{ CCG} + 50.620 \text{ RS} + 11.292 \text{ SIBD} + 39.113 \text{ GDP} - 298.125 \text{ IR} - 142.011 \text{ ER} + 248.618 \text{ CBWALI} + 1477.433 \text{ CBK91-Day T-Bill} - 8066.328 \text{ BP} - 2.087 \text{ NSE20} - 73.318 \text{ UR}$

The Joint effect of Corporate Governance indicators, Macroeconomic Variables and Investment Strategy (IS) Index on the Combined ROI of Pension Funds.

H_4: The joint effect of CG, macroeconomic variables as well as IS index is statistically significant on the combined ROI of pension funds of pension funds registered by the RBA.

Table 18: Model Summary of the Joint effect of CG indicators, IS Index and macroeconomic variables on the combined ROI of pension funds

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R square change	F Change	df1	df2	Sig. F change	
1	.907a	.822	.751	25.49247	.822	11.573	16	40	<.001	1.438

a. Predictors: (Constant), Unemployment rate, Shareholder´s Rights, Board structure and composition, Commitment to Corporate governance, Stakeholders interests in board decisions, GDP Growth Rate (%), Role of stakeholders, Balance of Payments, Inflation (%), Exchange rate (KS/US$), Disclosure and transparency, Commercial Banks weighted average lending interest rates (%), Board Responsibilities, IS Index, CBK 91-Day T Bill, NSE 20 Share Index

b. Dependent Variable: Combined ROI of pension funds

Source: Author's primary analysis (2025)

The results indicate that the overall regression model achieved an R^2 of 0.822 and an adjusted R^2 of 0.751, signifying a strong model fit (Table 18). This implies that 82.2% of the variation in the combined return on investment (ROI) of pension funds is explained by the regression model, which is a linear combination of CG indicators and macroeconomic.

Table 19: The ANOVA[a] of the Joint effect of CG indicators, IS Index and macroeconomic variables on the combined ROI of pension funds

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	120332.160	16	7520.760	11.573	<.001b
	Residual	25994.631	40	649.866		
	Total	146326.791	56			

a. Dependent Variable: Combined ROI of pension funds

b. Predictors: (Constant), Unemployment rate, Shareholder´s Rights, Board structure and composition, Commitment to Corporate governance, Stakeholders interests in board decisions, GDP Growth Rate (%), Role of stakeholders, Balance of Payments, Inflation (%), Exchange rate (KS/US$), Disclosure and transparency, Commercial Banks weighted average lending interest rates (%), Board Responsibilities, IS Index, CBK 91-Day T Bill, NSE 20 Share Index

Source: Author's primary analysis (2025)

The ANOVA results in Table 19 show that the model is highly significant ($F(16, 40) = 11.573$, $p < 0.001$), indicating strong joint explanatory power for combined ROI. The results reveal that Pension funding in Kenya is influenced by CG, IS, and macroeconomic conditions. Governance reduces agency conflicts and promotes prudent, diversified investment decisions aligned with long-term liabilities, consistent with Modern Portfolio Theory. Macroeconomic factors directly affect asset returns and liabilities, in line with Arbitrage Pricing Theory, thereby shaping overall funding outcomes.

Table 20: Coefficients of the Joint effect of CG indicators, IS Index and Macroeconomic Variables on the combined ROI of pension funds

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta	T	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	3516.697	1233.038		2.852	.007					
	Board structure and composition	-20.829	51.371	-.100	-.405	.687	.366	-.064	-.027	.073	13.624
	s	-86.814	34.577	-.428	-2.511	.016	.245	-.369	-.167	.153	6.547
	Shareholder´s Rights	-22.141	15.566	-.110	-1.422	.163	-.170	-.219	-.095	.746	1.340
	Disclosure and Transparency	-8.190	27.340	-.041	-.300	.766	.302	-.047	-.020	.241	4.143
	Commitment to Corporate governance	8.100	9.760	.062	.830	.412	-.133	.130	.055	.792	1.262
	Role of stakeholders	33.588	21.213	.148	1.583	.121	.539	.243	.106	.511	1.957
	Stakeholders'interests in board decisions	12.120	12.278	.071	.987	.330	.200	.154	.066	.865	1.156
	IS Index	127.791	43.438	.693	2.942	.005	.429	.422	.196	.080	12.495
	GDP Growth Rate (%)	37.243	18.402	.484	2.024	.050	-.038	.305	.135	.078	12.855
	Inflation (%)	-287.343	40.473	-3.136	-7.100	<.001	-.227	-.747	-.473	.023	43.918
	Exchange rate (KS/US$)	-135.784	21.551	-8.328	-6.301	<.001	-.272	-.706	-.420	.003	393.373
	Commercial Banks weighted average lending interest rates	239.778	39.449	4.513	6.078	<.001	.155	.693	.405	.008	124.152
	CBK 91-Day T Bill	1428.483	274.875	7.985	5.197	<.001	.258	.635	.346	.002	531.639
	Balance of Payments,	-7594.110	1253.534	-4.268	-6.058	<.001	.110	-.692	-.404	.009	111.763
	NSE 20 Share Index	-2.001	.337	-15.988	-5.947	<.001	.297	-.685	-.396	.001	1627.602
	Unemployment rate	-58.870	71.880	-.485	-.819	.418	-.159	-.128	-.055	.013	79.028

a. Dependent Variable: Combined ROI of pension funds

Source: Author's primary analysis (2025)

The results in Table 20 show that BR is the only CG variable with a significant effect on ROI, and its impact is negative. Major macroeconomic variables including Exchange Rate, Balance of Payments, Inflation, and the NSE 20 Share Index also have significant negative effects on pension fund returns. In contrast, the IS Index, GDP growth, lending interest rates, and the 91-day Treasury Bill rate exert significant positive effects on ROI. Other governance indicators are statistically insignificant, suggesting that IS and macroeconomic conditions play a more decisive role in pension fund performance than most governance mechanisms in the joint model.

The Joint effect Model

Combined ROI =	3516.697- 20.829BSC - 86.814BR - 22.141SR - 8.190&T + 8.100CCG+ 33.588RS + 12.120SIBD + 127.791IS Index + 37.243GDP - 287.343 Inflation - 135.784 EC + 239.778CBWALIR + 1428.483CBK - 7594.110BP – 2.001 NSE –58.87UR.

Discussion of the Findings

The relationship between CG and Combined ROI of Pension Funds

This study examined the relationship between CG mechanisms and the combined ROI of pension funds in Kenya. The findings indicate that governance mechanisms do not uniformly affect fund performance.

Among the CG mechanisms examined, only the RS had a significant positive effect on the combined ROI of Kenyan pension funds (t = 2.934, p < .05), suggesting that stakeholder-oriented governance is crucial for long-term value creation. Other governance mechanisms showed insignificant relationships, implying that structural adoption alone does not guarantee performance gains; effectiveness depends on implementation, enforcement, and board independence. Consistent with studies in both developed and emerging markets (Melis, 2000; Allegrini & Greco, 2011; Ongore & K'Obonyo, 2011), governance mechanisms alone do not automatically enhance financial outcomes. In the Kenyan pension fund context, stakeholder-oriented governance emerges as the most salient driver of performance. Policymakers and regulators should therefore strengthen enforcement of governance standards, enhance board effectiveness, and promote meaningful stakeholder engagement to improve long-term sustainability and returns of pension funds.

The relationship between IS and Combined ROI of Pension Funds

This study examined whether IS mediates the relationship between CG and the combined ROI of pension funds registered with the Retirement Benefits Authority (RBA) in Kenya. Results indicate partial mediation, showing that CG affects pension fund performance both directly and indirectly through IS, consistent with the Agency Theory and the G20/OECD Principles of CG. Specifically, stakeholder roles exhibited a positive and significant association with ROI, while other governance dimensions showed mixed or insignificant effects, suggesting that not all governance mechanisms equally enhance performance. Their effectiveness depends on the depth and quality of implementation. These mixed findings mirror Balagobei (2018) and reinforce the argument that not all governance attributes contribute equally to financial outcomes.

Governance was also found to significantly influence IS, with board structure and stakeholder roles positively influencing the IS Index. This finding aligns with the arguments of Khanna and Zyla

(2012) and Useem and Mitchell (2008), who contend that governance affects firm performance indirectly by shaping strategic choices. In turn, the IS Index was positively and significantly associated with combined ROI, emphasizing the role of strategic asset allocation and portfolio construction as mechanisms through which governance translates into improved financial performance. These results support the theoretical foundations of Modern Portfolio Theory and are consistent with prior empirical studies (Blake et al., 1999; Coggin et al., 1993; Grinblatt & Titman, 1989).

The full mediation model explained 40.5% of the variance in ROI ($R^2 = 0.405$, Adjusted $R^2 = 0.306$) and was statistically significant ($F(8,48) = 4.087$, $p < .001$). Although stakeholder roles retained a direct effect on ROI, other governance indicators and the IS Index became insignificant in the full model, confirming partial mediation. Overall, the findings underscore that effective governance enhances pension fund returns both directly and indirectly by strengthening IS formulation and execution. This supports prior empirical evidence (Fama, 1978; Efni, 2017; Soumaya, 2015; Susanti et al., 2019) and reinforces the theoretical proposition that governance mechanisms create value by improving strategic investment decision-making processes.

The relationship between macroeconomic variables, CG and combined ROI of pension funds

The study results indicate that macroeconomic variables significantly moderate the relationship between CG indicators and combined pension fund ROI. Stepwise analysis showed that including interaction terms improved model explanatory power ($\Delta R^2 = 7.0–7.5\%$, $p < .05$), with the NSE 20 Share Index, inflation, and GDP growth exerting notable moderation effects. In the full model, governance and macroeconomic factors jointly explained 78.4% of ROI variation, with stakeholder involvement positively influencing returns, while inflation, exchange rate movements, balance of payments, and market volatility had negative effects. These findings support Arbitrage Pricing Theory (Roll & Ross, 1980; Chen, 1991) and Stakeholder Theory, demonstrating that governance effectiveness is contingent upon broader macroeconomic conditions. The significance of stakeholder involvement provides empirical support for Stakeholder Theory, highlighting that broader accountability mechanisms enhance financial performance in institutional investment contexts.

The joint effect of CG, IS and macroeconomic variables, and combined ROI of pension funds

The joint model of CG, IS, and macroeconomic variables significantly explained pension fund ROI ($R^2 = 0.822$; Adjusted $R^2 = 0.751$; $F(16, 40) = 11.573$, $p < 0.001$), indicating that fund performance is shaped by governance, strategic investment, and economic conditions. Board Responsibilities was the only governance dimension with a significant, negative effect. This finding aligns with Agency Theory, suggesting that weak monitoring and inadequate strategic control can exacerbate agency conflicts and impair financial outcomes. The other governance measures were not significant, suggesting structural compliance alone may not impact short-term returns. Investment strategy had a strong positive effect on ROI, highlighting the importance of

asset allocation and diversification, supporting the Modern Portfolio Theory (Markowitz, 1952), which posits that optimal portfolio construction enhances expected returns for a given level of risk. Macroeconomic factors showed mixed effects but largely significant: GDP growth and interest rates supported returns, whereas inflation, exchange rate depreciation, balance of payments pressures, and stock market volatility undermined performance. These findings align with Arbitrage Pricing Theory (APT), which asserts that asset returns are sensitive to multiple systematic risk factors beyond managerial control.

The results indicate that pension fund performance in Kenya is jointly determined by governance quality, investment strategy, and macroeconomic conditions. The relative magnitude of the coefficients suggests that investment strategy and macroeconomic factors exert more immediate and measurable effects on ROI, whereas governance mechanisms, particularly board responsibilities, provide a foundational monitoring and control function.

Conclusion

This study examined the effects of CG, IS, and macroeconomic conditions on the financial performance of pension funds registered by the Retirement Benefits Authority (RBA) in Kenya, measured using combined return on investment (ROI). The findings show that CG has a significant effect on fund performance, with stakeholder participation in board decision-making emerging as the only governance dimension with a positive and statistically significant impact, supporting Stakeholder Theory of Freeman (1984). Other governance variables showed insignificant effects, suggesting possible weaknesses in enforcement rather than structural flaws, consistent with the monitoring logic of Agency Theory Jensen and Meckling (1976).

Investment strategy was found to significantly mediate the governance–performance relationship, consistent with the portfolio allocation principles of Markowitz's (1976) Modern Portfolio Theory, which emphasizes optimal asset allocation as the foundation of return–risk efficiency. Additionally, inflation, GDP growth, and the NSE 20 Share Index significantly moderated the relationship, supporting multi-factor asset pricing logic, supporting the multi-factor logic of asset pricing articulated in Arbitrage Pricing Theory. Overall, the results confirm an integrated governance–investment–macroeconomic framework in explaining pension fund performance in Kenya, highlighting the complementary explanatory power of Agency Theory, Stakeholder Theory, Modern Portfolio Theory, and the macro-financial asset pricing frameworks in explaining pension fund performance.

Implications of the study findings: Contribution to theory and knowledge

The study contributes to pension finance and governance literature by extending Agency Theory, Stakeholder Theory, Modern Portfolio Theory, and Arbitrage Pricing Theory to a developing-country pension fund context, showing that these frameworks complement each other in explaining ROI. Empirically, the study provides evidence that CG, IS, and macroeconomic variables jointly influence pension fund performance. Stakeholder involvement has a strong positive effect,

investment strategy mediates the governance–performance link, reinforcing theoretical expectations derived from Modern Portfolio Theory and macroeconomic factors moderate this relationship, aligning with propositions of Arbitrage Pricing Theory regarding the role of systematic risk factors. The findings provide practical guidance for fund managers and regulators to strengthen governance, refine investment strategies, and enhance pension fund sustainability.
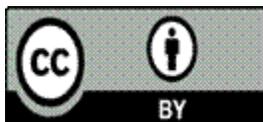
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